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Site Preparation Guide

Cargo Movement Operations System (CMOS)

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Standard Systems Center/AQFT
Gunter Air Force Base, Alabama 36114-6343

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1 December 1989

CARGO MOVEMENT OPERATIONS SYSTEM (CMOS)

SITE PREPARATION GUIDE

INCREMENT I & INCREMENT II

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SITE PREPARATION GUIDE

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ANNEXES

I. GENERAL SITE PREPARATION GUIDE.

A. Purpose. The purpose of this guide is to assist MAJCOMs and bases with site surveys and facility preparation for the Cargo Movement Operations System (CMOS). The guide also familiarizes site survey and facility preparation personnel with CMOS. Additionally, it identifies the activities and responsibilities associated with providing adequate facilities and a local area network (LAN) for the CMOS program.

B. Objectives.

1. The objectives of this guide are:

a. To acquaint the MAJCOMs and bases with CMOS.

b. Provide to the MAJCOMs and bases a description of their responsibilities in the planning, programming, budgeting, design, and modification of facilities required to accommodate the CMOS equipment.

c. Provide a logical sequence of events to ensure facility and telecommunications surveys are conducted and needed facilities and telecommunications support are available for implementation of the CMOS equipment.

d. Provide sufficient technical data to MAJCOM and base Transportation, Civil Engineering, and Communications personnel to analyze and design the required facility support package.

e. Provide sufficient system equipment and configuration data to allow the MAJCOMs to conduct the facility site surveys.

C. Assumptions.

1. The term "facility" is defined to be an all encompassing word and is not limited to just the equipment area. The term also includes the operational support space, utility systems for all areas, and all other special considerations required of a CMOS facility (communications, physical security, fire protection, etc.).

2. Each site will program an Operations and Maintenance (O & M) project or appropriate work orders to support the CMOS equipment installation.

3. The installation of the early on-sites will have adequate base-level support even when the program does not meet the Base Civil Engineering (BCE) and Communication unit's normal programming or planning lead times.

4. Funds will be available for equipment, installation, and facility upgrades.

5. All computer and Air Force Unified Local Area Network Architecture (ULANA) equipment can be delivered and installed by stated installation dates.

6. AFCC Engineering and Installation Division (EID) will support CMOS.

D. Cargo Movement Operations System Overview.

1. The purpose of the Cargo Movement Operations System (CMOS) is to provide worldwide automated logistics support to base-level transportation activities. To do this, CMOS automates the receipt, processing, and movement of material within the National Defense Transportation System. Processing and passing this information in an accurate and timely manner, CMOS allows transporters to effectively plan and schedule shipments into the transportation pipeline. The system also controls shipment units to maximize the use of transportation resources and reduce transportation costs. Shipment consolidation and mode of shipment are determined by Air Force mission requirements, priority, nature of material, weight, cube, and other cost alternatives. Additionally, by using resident files, interfaces with other automated systems and manual input source data, the system will automate shipment consolidations, hazardous material processing, and packing requirements.

2. CMOS will be developed in three increments.

a. Increment I will provide transporters a responsive automated system which will handle day-to-day base-level transportation. It will improve shipment/resupply visibility and electronic interface with the USAF Standard Base Supply System on shipment status and intransit data. It will also send automated shipment data to transshipment points and consignees and generate management and workload report data.

b. Increment II, Transportation Mobility Deployment (TRANSMOD), will provide the Air Force version of the Joint Chiefs of Staff (JCS) Transportation Coordinators Automated Information for Movements System (TCAIMS). This increment will establish a direct interface with the Contingency Operation/Mobility Planning and Execution System (COMPES). Information available within the CMOS, coupled with the interface with COMPES, establishes a foundation for a totally automated cargo movement operations system. This increment will support mobility exercises, contingencies, and crisis deployments, as well as normal day-to-day requirements. Movement data will be provided to MAJCOM COMPES, Military Airlift Command (MAC), and other CMOS systems for use during crisis periods. Increment II

will be installed at least six months after Increment I installation, and an exact schedule is yet to be determined.

c. Increment III will be a Preplanned Product Improvement phase. This increment will automate the remaining labor-intensive requirements not automated in Increment I and II.

E. Responsibilities. This section outlines responsibilities applicable to site preparation for the CMOS program.

1. HQ AFCC will:

a. Serve as the implementing command and be responsible to HQ USAF/LE for overall program management of the CMOS program implementation.

b. In coordination with the CMOS Program Office, the MAJCOMs and Comm Divisions:

(1) Ensure communications requirements to support CMOS are properly identified.

(2) Provide communications support in time to support system implementation.

2. All participating commands will: (AAC, AFCC, AFALC, AFLC, AFRES, AFSC, AFOTEC, ATC, AFSPACECOM, AU, PACAF, TAC, SAC, USAFE, ANG, MAC, ESC)

a. Support the implementation of the CMOS program with personnel and material resources for site preparation. Site preparation funds will be provided through the Program Office (AQFT).

b. Provide command site survey orientation support for all CMOS sites within their command through regional training conferences. (Should consist of representative from LGT.)

c. Ensure necessary documentation is prepared to support programming, budgeting, and reporting. (See annex C)

d. Provide SSC/AQFT detailed cost estimates for each site preparation for review/validation.

3. The Program Management Office (PMO), SSC/AQFT, will:

a. Provide MAJCOM orientation on the CMOS program and conduct site survey training at the MAJCOM base (see Annex A).

b. Coordinate with the participating commands to ensure facility and telecommunications surveys are conducted and adequate facilities and telecommunications support are available.

c. Provide detailed guidance so MAJCOM personnel can conduct operational site surveys.

d. Track site support effort at each installation through monthly reports (Annex F).

e. Provide a POC for MAJCOM questions.

4. SSC/AQAE (Civil Engineering Division of SSC) will:

a. Provide a civil engineering point of contact for all MAJCOM and base CE functions.

b. Validate the required work and cost for each installation prior to funds transfer.

c. Provide site visits to assist MAJCOMs if facility problems cannot be resolved.

5. Bases will:

a. Perform site surveys under MAJCOM guidance.

(1) Appoint a CMOS manager from the LGT office.

(2) Survey the site using guidance in this document with DE, SC, LGX, and LGT personnel.

(3) Submit civil engineering construction requests through civil engineering channels (Section III, para C).

(4) Submit communications requirements through local communication SCX for processing (local directives).

b. Complete the Project Support Agreement (PSA) (Annex E).

c. Provide monthly status reports (Attachment 3).

II. CARGO MOVEMENT OPERATIONS SYSTEM (CMOS) DESCRIPTION.

A. Functions to be Automated. Increment I is the first step in the development of the CMOS program. It will provide standard automated procedures for the capture, transfer, and control of cargo movement information. Increments II and III will provide automated mobility functions, radio frequency transmission of cargo data for mobility, and further cargo movement automation. The cargo movement functions in Increment I consist of four primary workcenter modules on which the rest of the CMOS system will be built. The four workcenters to be automated and their individual functions are listed in Table II-1.

TABLE II-1 FUNCTIONS TO BE AUTOMATED

1. Increment I.

   a. Packing and Crating:

      (1) In-check from Base Supply using Bar Code Scanner.
      (2) Print Bar Coded Shipping Labels.
      (3) Maintain/Print Organizational Reusable Container Report.
      (4) Provide monthly T-WRAPS data.

   b. Shipment Planning:

      (1) Receive 1348-1 Document Record via electronic interface with Base Supply.
      (2) Maintain Non-MILSTRIP TCN Register.
      (3) Identify documents/shipments for consolidation.
      (4) Prepare/send Advance TCMD/trailers.

   c. Surface Freight:

      (1) In-check using Bar Code Scanner.
      (2) Intransit data (IDC) processing.
      (3) Maintain Tonnage Distribution Record.
      (4) Prepare/print Government Bills of Lading.
      (5) Prepare/print Commercial Bills of Lading.
      (6) Prepare/print Government Truck Manifest.
      (7) Maintain Bill of Lading Registers.
      (8) Maintain Obligation Authority Records.
      (9) Provide monthly T-WRAPS data.

   d. Air Freight:
      (1) In-check using Bar Code Scanner.
      (2) Intransit data (IDC) processing.

TABLE II-1 FUNCTIONS TO BE AUTOMATED CONT...

(3) Maintain Over/Short Shipment Records.
(4) Provide Backlog Listing by warehouse location, destination POD, DODAAC, or priority.
(5) Pallet build-up using Bar Code Scanner.
(6) Printing of pallet inventory list.
(7) Prepare/print Final Air Manifest.
(8) Maintain Air Manifest Register.
(9) LOGAIR history and reimbursement report.
(10) Monthly Station Traffic Summary.
(11) Monthly T-WRAPS.

2. Increment II - Transportation Mobility Development (TRANSMOD).

a. This increment provides deployment supportability by automating the following:

(1) Builds on CMOS Increment I.
(2) Automates Base Level Mobility Functions:
(a) Mobility Control Center (MCC).
(b) Transportation Control Center (TCC).
(c) Air Cargo Terminal (ACT).
(d) Air Passenger Terminal (APT).
(e) Sub Motor Pool (SMP).
(3) Interface with Contingency Operation/Mobility Planning and Execution System (COMPES).
(a) Receives Mobility Schedule of Events (MSOE) and detailed Cargo/Pax record from COMPES.
(b) Updates MSOE as scheduled actions occur.
(4) Produces automated load plans of aircraft, trucks, and railcars using Computer Aided Load Manifesting System (CALM).
(5) Alerts Transportation Control Unit of problems with schedules.
(6) Passes movement data to MAJCOMs, Transportation components of US TRANSCOM, Base level systems, and other CMOS sites - Interface with Base Level Combat Ammunition System (CAS-B).
(7) Interface with Military Traffic Management Command (MTMC).
(a) Domestic routing request.
(b) Export Traffic Release request.
(8) Establishes electronic data interchange.
(a) Interface with private sector and DoD agencies to pass and receive bills of lading.
(9) Computer generated hazardous cargo documentation.
(10) Tracks personnel and training records for mobility positions.

c. Increment III - Preplanned Product Improvement (P^3I). This increment consists of requirements not currently defined to a sufficient level of detail for development. These P^3I requirements will be added after CMOS system deployment. Initial P^3I estimates are 25 menu screens, 100 user input screens, and 15 system reports.

B. System Hardware and Architecture. CMOS is composed of minicomputers as hosts (AT&T 3B2) which control the system and process master databases and microcomputers which are used to process data at the workcenters. (See equipment layout drawings Annex B). The CMOS system is interconnected by a local area network (LAN) and twisted pair telephone cables.

1. Terms:

Workstation: A microcomputer such as a Z-248 used to process information.

Host/LAN Terminal server: A master micro or minicomputer used to manage the LAN system, hold the LAN operating system files, and provide storage facilities for user generated files.

UPS: An uninterruptable power source capable of providing a short period of battery power in the event the main power supply is interrupted. It is intended to provide sufficient power to exit a program and shut off the equipment without losing data.

2. The minicomputers (host) maintain the central database and provide communications with other automated systems via connection to the Defense Data Network (DDN). The System Administrator function is collocated with these computers.

3. An Uninterruptable Power Source (UPS) provides clean power and 10 minutes of backup power to the minicomputers.

4. Microcomputers (workstations) (Zenith Z248 or equivalent) provide processing in the Shipment Planning, Packing and Crating, Surface Freight, and Air Freight workcenters. Increment II workcenters also will use these computers.

a. All order processing, cargo information processing, and form preparation will be done on these machines.

b. Bar code readers (scanners) capture inbound cargo data and store information in hand-held terminals (HHT). The data is then transferred by plugging into one of the workstations or to the LOGMARS interface computer described in section II.B.8.b.

5. Non-collocated workstations are connected to the main CMOS LAN through dedicated and dial-up telephone lines (see Annex D). A non-collocated workstation is defined as one which is located in a separate building from the Increment I TMO LAN.

6. LAN Terminal Server. This device provides connection to the LAN for all workcenters requiring telephone line connection. It also provides backup connection for workstations located in the same building as the host computers.

7. Printers. The system uses a high speed line printer, DOT matrix printers, and laser printers.

8. Two specialized interface microcomputers will be connected to the LAN.

a. Standard Base Supply System (SBSS) interface. CMOS uses a microcomputer as a protocol converter for data communications between the TMO Processor and the SBSS. (The SBSS is part of the UNISYS S-1100 Standard Base Level Computer.)

b. Air Clearance Authority (ACA) interface microcomputer (selected overseas locations only).

9. Increment II will add a microcomputer in each of the mobility workcenters. These will connect to the main CMOS LAN through dedicated and dial-up telephone lines.

a. The nine mobility workcenters are: Mobility Control Center (MCC), Transportation Control Unit (TCU) (including both Officer and Controller positions), Air Cargo Terminal (ACT), Air Passenger Terminal (APT), Sub-Motor Pool (SMP), LGTX office, Load Planning (LP), interface with the Combat Ammunition System (CAS), and the MAJCOM Logistics Readiness Center (LRC) or its equivalent.

b. The LGTX computer is not connected to either the Increment I LAN or the Increment II LAN but stands alone and is a TEMPEST secure microcomputer.

c. The CAS microcomputer is located with the CAS system and connects to CMOS LAN via one dedicated and one dial-up telephone line. For security reasons, the CAS microcomputer will not be connected to the CAS system.

d. The MAJCOM LRC microcomputer is located at MAJCOM or Numbered Headquarters and connects to the CMOS LAN by telephone.

10. A Radio Base Station provides RF capability for the hand-held Bar Code Reader in Increment II. These will operate in the 1.4 Giga Hertz range. (Exact location of the base station

will be determined at a later date.

C. Equipment Description (See Table C-1 of Annex C for more technical details)

1. Minicomputers will be rack mounted.

Size: Computers are 13" high by 17" wide by 25" deep; racks are about 52" high by 24" wide by 32" deep - two racks will be used to hold the CMOS equipment.

2. Workstation microcomputers.

Desktop unit. Approximate size: 21" wide by 20" deep (with cords) by 6.5" high; screen is 14" high by 14" wide by 16" deep.

3. High Speed Line Printer.

Floor unit. A little larger than a household dryer. About 33" wide by 36" deep by 40" high.

4. Laser Printers.

Desktop unit; about 18" wide by 24" deep by 15" high.

5. Dot Matrix printers for normal printing.

Desktop unit. About 26" wide by 18" deep. Also, approximately 13" is needed behind the printer for paper.

6. Uninterruptable Power Source (UPS). A floor unit, about 32" high by 16" wide by 24" deep.

7. LAN Terminal Server. Rack Mounted unit about 19" wide by 18" deep by 6" tall. Rack mounted in main CMOS area.

8. Radio Base Station. Rack mounted unit about 19" wide by 18" deep by 6" tall.

9. For further information on equipment configurations, see Section II.D and Annex B.

D. Equipment List by Workcenter. (Maximum Configuration.) See Tables II-1 and II-2.

Table II-1 INCREMENT I EQUIPMENT

ITEM DESCRIPTION	QTY	UNIT	NOTES
TMO CENTRAL COMPUTER EQUIPMENT			
MINI-COMPUTERS			
AT&T 3B2 UNITS	2	EA	
LAN CABLE (for all collocated equipment)	1	EA	
MODEM (for DDN connection)	2	EA	
MODEM	18	EA	
MODEM RACK (for dial-up connection)	1	EA	
LAN TERMINAL SERVER	1	EA	
CMOS MAIN WORKCENTER AREA			
SYSTEM ADMINISTRATOR WORKSTATION	1	EA	
LINE PRINTER 300	1	EA	
SUPPLY INTERFACE			
SUPPLY INTERFACE WORKSTATION	1	EA	
MODEM (for SBSS computer connect)	1	EA	
AIR CLEARANCE AUTHORITY (ACA) INTERFACE (SELECTED OVERSEAS BASES)			
ACA INTERFACE PC	1	EA	
MODEM	2	EA	
AIR FREIGHT WORKCENTER EQUIPMENT			
AIR FREIGHT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	1	EA	
SURFACE FREIGHT WORKCENTER EQUIPMENT			
SURFACE FREIGHT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
LASER PRINTER	1	EA	
MODEM	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
SHIPMENT PLANNING WORKCENTER EQUIPMENT			
SHIPMENT PLANNING WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	1	EA	
PACKING AND CRATING WORKCENTER EQUIPMENT			
PACKING AND CRATING WORKSTATION	1	EA	
LASER PRINTER	1	EA	
MODEM	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	

Table II-2 INCREMENT II EQUIPMENT

ITEM DESCRIPTION	QTY	UNIT	NOTES
MOBILITY CONTROL CENTER (MCC) WORKCENTER EQUIPMENT			
MCC WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	
TRANSPORTATION CONTROL UNIT (TCU) WORKCENTER EQUIPMENT			
TCU WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
AIR CARGO TERMINAL (ACT) WORKCENTER EQUIPMENT			
ACT WORKSTATION	1	EA	
LASER PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
AIR PASSENGER TERMINAL (APT) WORKCENTER EQUIPMENT			
APT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
SUB-MOTOR POOL (SMP) WORKCENTER EQUIPMENT			
SMP WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	
LOAD PLANNING (LP) WORKCENTER EQUIPMENT			
LOAD PLANNING WORKSTATION	1	EA	
LASER PRINTER	1	EA	
MODEM	2	EA	
MAJCOM LOGISTICS READINESS CENTER (LRC) WORKCENTER EQUIPMENT			
LRC WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	
COMBAT AMMUNITION SYSTEM - BASE (CAS) WORKCENTER EQUIPMENT			
CAS-B WORKSTATION	1	EA	
MODEM	2	EA	
DOT MATRIX PRINTER	1	EA	
LGTX WORKCENTER EQUIPMENT (TEMPEST)			
LGTX WORKSTATION	1	EA	1
DOT MATRIX PRINTER	1	EA	

NOTE: The CMOS PMO is not responsible for a secure location to house this equipment.

III. SITE PREPARATION PROCEDURES

A. Site Survey Requirements. The following tasks must be accomplished to ensure that the site is prepared for the CMOS equipment. The time phasing of the tasks can be found in Tables III-1 and III-2.

1. This task initiates the CMOS facility support effort. The site survey team will include but is not limited to the following representatives:

a. Program Management Office Representatives. (OT&E and Lead Bases Only)

b. MAJCOM CMOS Representatives. (As desired by MAJCOM)

c. Base LGT/Representatives.

d. Base CMOS Manager.

e. Base Comm Representatives: Communications and Program Support Agreement (PSA) expertise are needed from the Comm representative.

f. Base DE Representatives

g. Base LGX (Mobility) Representatives

2. The survey team will follow the guidance in this document to:

a. Determine equipment location and configuration for Increments I and II.

b. Determine communication support requirements.

c. Determine Civil Engineering support requirements.

d. Provide data for LAN support.

e. Prepare an equipment requirement list.

3. LAN support for this program is dependent on the equipment locations and where workcenters are collocated. Ensure that the intended method of communication from each workcenter to the central computer is determined so COMM and CE support is properly identified (refer to Annex D guidelines).

Table III-1 **CMOS FACILITY PREPARATION ACTIVITIES (CONUS)**

	OPR	OCR	START MONTH
Survey (INC. I & II)	MAJCOM	SSC/AQFT	- 18
Base Concurrence	Base Commander	MAJCOM	- 17
Initiate CE and Communications Work (INC. I & II)	Functional User	Base Commander	- 17
BCE and Base Communications Work Complete	BCE & Base Communications	Base Commander	- 1
Preinstallation Survey	MAJCOM	SSC/AQFT	- 1
CMOS Equipment Installation	SSC/AQFT	MAJCOM	0
Operational Test Date (INC. I ONLY)	Functional User	SSC/AQFT	+ 1
Required Operational Date (INC. I ONLY)	Functional User	SSC/AQFT	+ 3

Table III-2 **CMOS FACILITY PREPARATION SCHEDULE (OVERSEAS)**

	OPR	OCR	START MONTH
Survey (INC. I & II)	MAJCOM	SSC/AQFT	- 24
Base Concurrence	Base Commander	MAJCOM	- 23
Initiate CE and Communications Work (INC. I & II)	Functional User	Base Commander	- 23
BCE and Base Communications Work Complete	BCE Base Communications	Base Commander	- 1
Preinstallation Survey	MAJCOM	SSC/AQFT	- 1
CMOS Installation Complete	SSC/AQFT	MAJCOM	0
Operational Test Date (INC. I ONLY)	Functional User	SSC/AQFT	+ 1
Required Operational Date (INC. I ONLY)	Functional	SSC/AQFT	+ 3

B. Site Survey Sequence. (proposed)

1. LGTT brief site survey team personnel.

2. Complete Post Site Survey Checklist. (Attachment 1)

3. Determine workcenter/location requirements: (Annex B)

a. Consolidate workcenters by building and room.

b. Explain workcenters not used.

c. Evaluate effects of future plans on current facilities.

4. Determine workcenter equipment requirements (Microcomputers, printers, modems, etc.) (See Tables II-1 and II-2)

5. Determine possible COMM/LAN connection of workcenters to central computer. (Annex D)

6. Visit each workcenter location and evaluate need for:

a. Electrical power.

b. Air Conditioning.

c. Dedicated and dial-up telephone lines.

d. Work space for each workstation computer. Include printers modems and other hardware needed to support the workcenter. (See Annex C)

7. Visit central computer area and evaluate need for:

a. Electrical power.

b. Air Conditioning.

c. Dedicated and dial-up telephone lines.

d. Work space for each AT&T computer. Include printers, modems, and other hardware needed to support the central computer area. (See Annex C)

8. Review the COMM/LAN interconnections and determine the method to be used by the workcenter. (Annex D)

9. Determine Comm support. (Annex D)

10. Determine CE support. (Annex C)

11. Complete PSA. (Annex E)

C. Validation/Funding Requirements for Construction. The CMOS program will be centrally funded through HQ AFCC and, as such, will follow the normal funding guidelines. This program will vary from the norm in that the PSA will be prepared at the base level and tracking of the project will be a joint effort between the base LGTT and SCX. Validation that program requirements are met will be accomplished through the CMOS program office in conjunction with the MAJCOM AFCC Division DE. The following are the general procedures for obtaining funds. There are two funding ranges under which CMOS facility support may be accomplished (below $2,000 and $2,000 to $15,000.) Each range has different documentation and procedural requirements as shown below:

1. **Projects estimated to require less than $2,000** should be accomplished under the host/tenant support agreement between AFCC and the base. The following steps are required:

a. Forward a copy of the completed AF Forms 332 and 327 to SSC/AQFT for tracking purposes.

b. If, for some reason the host/tenant agreement does not cover this work, follow the procedure in para C.2 below.

c. Work required under this category should begin as soon as possible.

2. **Projects estimated between $2,000 and $15,000.**

a. These projects will require a front-page AF Form 1391 and appropriate planning documentation for validation of the project. DO NOT BEGIN CONSTRUCTION UNTIL YOUR AF FORM 1391 HAS BEEN APPROVED BY YOUR MAJCOM DE AND SSC/AQ. This document must be approved before CMOS funds can be transferred.

b. The Program Element Code (PEC) for the CMOS Program is not available at this time. The PEC will be provided by message when available.

c. The BCE will initiate action with the base Facility Board to obtain project approval. The base LGTT and SCX must actively promote and defend their project at the Facility Board in order to obtain the highest priority for approval and accomplishment.

d. The package should be sent to the base SCX after Facility Board approval. They, in turn, will send the package to their AFCC Division DE or equivalent, with copies to HQ SSC/AQFT. The AFCC Division Commander will act on the package after review by the Division DE. The Division Commander has approval authority

up to $150,000. SSC/AQFT will work closely with the AFCC Division DE to ensure that all projects are validated and approved in a timely manner.

e. Funds will be made available only after the project is 100% designed and ready for contract award.

f. Further information can be obtained through AFCC Pamphlet 700-8, 1 Sep 86; DE File Letters 86-8, 86-14, and 86-18; and AFR 86-1, Civil Engineering Programming, Change 1, 26 Sep 86, Chap 1-5; AFR 700-3, Chap 2, Para 2-11 and Chap 5; and AFR 700-4, Vol 1, Chap 1, Para 1-7v and 1-7w.

D. Resources To Be Provided By The Base.

1. The base will be responsible for providing the following items to support the CMOS system and installation. These items will need to be on hand at the time the AT&T minicomputer is installed:

a. Tables and/or desks for computers, printers, and other equipment.

b. Spiker boxes.

c. Power cord adapters (overseas).

d. Paper for the high speed printer.

e. Equipment maintenance after FY 95.

f. Halon fire extinguishers for computer areas.

2. The MAJCOM will be responsible for providing the following support:

a. TDY funds needed for site surveys implementation and training (FY 90 and beyond).

b. Manpower for implementation and training.

IV. PSA REQUIREMENTS:

A. Program Support Agreement. The site survey team will initiate a Program Support Agreement (PSA) and other local documentation required to initiate work. Annex E contains a generic PSA and instructions for completion. The PSA should be coordinated with base support agencies to indicate concurrence with the proposed facility usage, modification, and required completion date to support the CMOS program. The PSA should be signed by either the Wing Commander or Base Commander, as applicable for the base. The following persons should coordinate on the PSA or Staff Summary Sheet:

1. Base Civil Engineer Commander.

2. Base Communications Squadron Commander.

3. Base Transportation Squadron Commander.

4. Base Commander.

B. Documentation, Validation, and Tracking.

1. Prior to completing the PSA, the Base CMOS Manager should complete the Program Support Agreement (PSA) Checklist to ensure that the PSA has been properly prepared and that all required documentation is attached. See Attachment 2.

2. Two complete copies of the PSA will be sent to SSC/AQFT, Bldg 856, Gunter AFB AL 36114-6343. Two copies of the PSA will also be sent to the MAJCOM/LGTT. PSA approval is subject to SSC/AQFT review.

3. The Base CMOS Manager will provide monthly status reports in accordance with Attachment 3.

4. Documents and validations required for construction funding will be handled IAW Section III, para C.

5. The Base CMOS Manager will provide validation of completed site preparation so equipment installation can be scheduled.

Attachment 1

CMOS POST SITE SURVEY CHECKLIST

The following checklist is intended to help the site survey team to ensure they have covered all support requirements. The checklist can be used during the survey but should be reviewed by the entire survey team before the PSA is finalized. This checklist references appropriate sections of the site preparation guide but is not intended to replace the guide. References are not necessarily complete. The questions are intended to aid in the necessary decision process but will not fit all situations since each installation is site specific.

YES NO N/A

___ ___ ___ 1. Were the workcenters listed in Tables II-1 and II-2 reviewed to identify local requirements,consolidation of workcenters or workcenters not used at your base?

___ ___ ___ 2. Were the locations, by building and room number, identified for the Central Computer Area and workcenters?

___ ___ ___ 3. Were future plans considered that could affect this program?

___ ___ ___ 4. Was the equipment (Table II-1 and II-2) list reviewed to determine equipment requirements for your base by workcenter?

___ ___ ___ 5. Were facility support requirements considered for each piece of equipment?

___ ___ ___ 6. Was an overall COMM/LAN plan developed to ensure all workcenter locations are covered, interior and exterior?

___ ___ ___ 7. Were the requirements in Annex G considered to ensure resources are available for implementation?

___ ___ ___ 8. Was an equipment requirement verification list prepared for the PSA?

Central Computer Area:

___ ___ ___ 1. Is adequate space available for equipment layout?

___ ___ ___ 2. Will the area meet the facility requirements in Annex C?

___ ___ ___ 3. Were the power requirements in Annex C, Table C-1 met?

___ ___ ___ 4. Were the air conditioning requirements in Annex C, Table C-1 met?

___ ___ ___ 5. Were the structural, fire, and security require ments in C considered?

___ ___ ___ 6. Are sufficient comm lines available in this area per Annex D?

___ ___ ___ 7. If 6 is "no," have the cabling requirements been identified, both interior and exterior?

___ ___ ___ 8. Has the RF antenna placement been considered?

Work Centers:

a. Air Freight:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

b. Surface Freight:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

c. Shipment Planning:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

d. Packing and Crating:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

e. Mobility Control Center:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C3 been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

f. Transportation Control Unit:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

g. Air Cargo Terminal:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

h. Air Passenger Terminal:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

i. Sub-Motor Pool:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

j. Load Planning:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C3 been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

k. Logistics Readiness Center (MAJCOM):

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

l. Combat Ammunition System:

___ ___ ___ 1. Was the collocation of workcenters considered?

___ ___ ___ 2. Are sufficient power receptacles available to support equipment, new and existing?

___ ___ ___ 3. Is power quality adequate?

___ ___ ___ 4. Have all equipment support requirements in Annex C been considered?

___ ___ ___ 5. Have the Comm Requirements for conduits and cable support been considered (Annex D)?

m. LGTX (TEMPEST Terminal):

___ ___ ___ 1. No facility support will be provided for this terminal.

Attachment 2

PROGRAM SUPPORT AGREEMENT (PSA) CHECKLIST

Please ensure that your PSA contains all of the following information:

Cover Letter:

[] Program support letter signed by the Wing or Base Commander.

[] Staff Summary Sheet showing full coordination of the PSA.

Attachment 1: (Site Survey/Base Implementation Data)

[] List of persons involved in conducting the site survey.

[] List of POCs and personnel familiar with the various attachments in the PSA, associated requirements, and work sites.

Attachment 2: (Equipment Requirements List)

[] Base implementation data listing: building locations, building numbers, and equipment requirements.

[] Indicate exact number and type of equipment needed following guidelines in Site Preparation Guide.

Attachment 3: (Equipment Power/Heat Criteria)

As shown by Site Implementation Guide sample. The purpose of this list is to show electrical consumption and BTUH load factors to determine electrical and air conditioning requirements.

Attachment 4: (Civil Engineering Support Requirements)

Projects costing less than $2,000:

[] 2 copies of completed AF Form 332 and/or AF Form 327 for any civil engineering support required.

Projects costing between $2,000 and $15,000:

[] 2 copies of a front page AF Form 1391 and appropriate planning documentation for validation of project.

Air Conditioning:

[] Statement indicating whether air conditioning is/is not needed. If needed, include 2 copies of AF Fm 332 requesting installation.

Fire Protection:

[] Statement indicating availability of suitable Halon fire extinguisher (max 70 foot distance from computers.)

Power Requirements:

[] Statement indicating any unusual power fluctuations, dirty power, or requirements for power conditioning, if required. If CE determines power conditioning is required, AFCC draft regulation 85XX will provide guidance.

[] 2 copies of AF Fm 332 requesting installation of dedicated circuit/circuit panel for the UPS when required.

Attachment 5: (Base Communications Support)

Communications Systems Requirements Document (CSRD):

[] 2 copies of approved AF Form 3215 to install any additional dedicated or dial-up cable pairs needed for this program.

[] If approved CSRDs cannot be obtained by suspense date for return of the PSA, provide copy of form submitted and date when approval will be available.

Cable Support:

[] Availability of one Twisted 4-Wire Cable:

[] Between the host and each remote workstation.

[] To the DDN Concentrator.

[] To the Sperry 1100 Standard Base Supply System computer. (The Comm Squadron must provide this hookup at the SBSS end.)

[] To the MAJCOM/NAF Logistics Readiness Center (LRC).

[] To the base munitions office that handles the Combat Ammunition System (CAS).

[] Availability of one dial-up cable at the host for each remote workstation.

[] One dial-up cable (class C line) at each remote workstation terminal including CAS.

[] If cable pairs are not available, include date when base will complete installation of required cable to the demarkation point. This installation will be base funded.

[] If base communication cannot support requirement, include copy of message sent to SSC/AQFT detailing problems.

Attachment 6: (LAN Support)

No input is required. Submission of this PSA and agreements from Comm and CE to provide allied support will satisfy support requirements.

Attachment 7: (Drawing List with Drawings)

[] Set of engineering drawings for each work site.

[] Drawing of each building:

Architecture:

[] Show room dimensions and ceiling height for each office.

[] Show overall building dimensions.

[] Indicate ceiling types, heights, and crawl space.

[] Show type of wall for all interior and exterior walls.

[] Show location of all furnace ducts, water pipes, electrical cable, etc., which are located in/on walls or ceilings.

Telephone/Cable:

[] Locate and mark the demarkation point for telephone wires (see your comm rep).

[] Color code existing and new required telephone demarkation points.

[] Show location of existing conduit/troughs.

Electrical:

[] Locate and mark electrical panels (see your CE rep).

[] Color code existing and new required electrical panels.

New Construction:

[] Color code any new office construction required to support CMOS or other activities and provide dimensions.

[] Drawing of each office or group of offices.

[] Show location of current and planned wall electrical plugs (color code).

[] Show location of current and planned telephone jacks (color code).

[] Show desired location of furture CMOS hardware.

[] For the above items, show distances from walls, height from floor or ceiling, etc.

[] Forward 2 copies of PSA and attachments to SSC/AQFT, Bldg 856, Gunter AFB, Alabama 36114-6343.

Attachment 3

MONTHLY STATUS REPORT FORMAT

FROM: **BASE** //LGTT (or SCX)//

TO: **MAJCOM** //LGTT/SCX/DEP//

INFO: HQ USAF WASH DC //LETX/LETT//
SSC GUNTER AFB AL //AQFT/AQAE//
HQ AFCC SCOTT AFB IL //LGTT/DEPR/AIAS//
(OTHER INFO ADDRESSES AS REQUIRED)

ZEN**BASE** //DEE/SCX/LGX/LGTX//

SUBJECT: CMOS STATUS REPORT, **MONTH, YEAR**

1. SITE SURVEY SCHEDULED DATE:

2. SITE SURVEY COMPLETION DATE:

3. PSA COMPLETION DATE:

4: PSA SENT TO MAJCOM AND SSC/AQFT:

5. DD FORM 1391 APPROVAL:

6. DESIGN STATUS:

7. PROJECT VALIDATION/FUNDS TRANSFER INITIATED:

8. PROJECT VALIDATION/FUNDS TRANSFER COMPLETE:

9. SCHEDULE CONSTRUCTION START DATE:

10. ACTUAL CONSTRUCTION START DATE:

11. CONSTRUCTION STATUS:

12. SCHEDULED CONSTRUCTION COMPLETION DATE:

13. ACTUAL CONSTRUCTION COMPLETION DATE:

14. COMM WORK STATUS:

15. FACILITY PREP COMPLETION DATE:

16. DDN SERVICE REQUEST DATE:

17. EQUIP DELIVERY STATUS:

18. EQUIP DELIVERY COMPLETION DATE:

19. SCHEDULED INSTALLATION DATE:

20. ACTUAL INSTALLATION DATE:

21. REMARKS:

ANNEX A

INSTALLATION SCHEDULE

CONTENTS

INCREMENT I
INSTALLATION SCHEDULE

	SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
1. INITIAL QUALIFICATION OPERATIONAL TEST AND EVALUATION (QOT&E), TRAINING AND LABORATORY SITES			
GUNTER AFB, AL (LAB-A)	** OCT 88	SEP 89	SEP 89
GUNTER AFB, AL (LAB-B)	** OCT 88	SEP 89	SEP 89
EGLIN AFB, FL	** NOV 89	NOV 89	DEC 89
LANGLEY AFB, VA (QOT&E)	** OCT 88	APR 90	MAY 90***
SEYMOUR-J. AFB, NC (QOT&E)	** OCT 88	APR 90	MAY 90***
DOVER AFB, DE	** OCT 89	APR 90	MAY 90***
SHAW AFB, SC	** OCT 89	MAY 90	AUG 90***
SCOTT AFB, IL	** JUN 89	MAY 90	AUG 90***
WRIGHT-PATTERSON AFB OH	** SEP 89	MAY 90	AUG 90***
RAMSTEIN AB, GE	** MAY 89	JUN 90	SEP 90***
KADENA AB, JA	** SEP 89	JUN 90	SEP 90***
SHEPPARD AFB, TX (TECH TNG)	** SEP 88	JUL 90	OCT 90***
BARKSDALE AFB, LA	** MAR 89	JUL 90	OCT 90***

* NOTE: SITE PREPARATION INCLUDES ALL SUPPORT REQUIREMENTS FOR INCREMENTS I AND II. REQUIRED OPERATIONAL DATE IS FOR INCREMENT I ONLY.

** NOTE: TO BE COMPLETED BY THE PROGRAM OFFICE

*** NOTE: EQUIPMENT WILL BE IN PLACE AT THIS TIME, BUT SYSTEM IOC IS FEB 91. AS EARLY AS MAY 90, PROTOTYPE SOFTWARE WILL BE SENT AND THE SITE WILL BE USED FOR SYSTEM DEMONSTRATION.

2. TACTICAL AIR COMMAND (TAC) INSTALLATION SCHEDULE			
MYRTLE BEACH AFB, SC	MAY 89	NOV 90	FEB 91
MOODY AFB, GA	MAY 89	NOV 90	FEB 91
HOMESTEAD AFB, FL	MAY 89	NOV 90	FEB 91
MACDILL AFB, FL	MAY 89	NOV 90	FEB 91
TYNDALL AFB, FL	MAY 89	NOV 90	FEB 91
ENGLAND AFB, LA	MAY 89	NOV 90	FEB 91
BERGSTROM AFB, TX	MAY 89	DEC 90	FEB 91
CANNON AFB, NM	MAY 89	DEC 90	FEB 91
MOUNTAIN HOME AFB, ID	MAY 89	DEC 90	FEB 91
HOWARD AFB, CANAL ZONE	MAY 89	DEC 90	FEB 91
HOLLOMAN AFB, NM	MAY 89	DEC 90	FEB 91
DAVIS MONTHAN AFB, AZ	MAY 89	DEC 90	FEB 91
LUKE AFB, AZ	MAY 89	JAN 91	FEB 91
NELLIS AFB, NV	MAY 89	JAN 91	FEB 91

TAC FULL OPERATIONAL CAPABILITY: FEBRUARY 1991

	SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
3. STRATEGIC AIR COMMAND (SAC) INSTALLATION SCHEDULE			
LORING AFB, ME	AUG 89	JAN 91	FEB 91
PLATTSBURG AFB, NY	AUG 89	JAN 91	FEB 91
GRIFFISS AFB, NY	AUG 89	JAN 91	FEB 91
WURTSMITH AFB, MI	AUG 89	JAN 91	FEB 91
K.I. SAWYER AFB, MI	AUG 89	FEB 91	FEB 91
GRISSOM AFB, IN	AUG 89	FEB 91	FEB 91
OFFUTT AFB, NE	AUG 89	FEB 91	FEB 91
WHITEMAN AFB, MO	JUL 89	FEB 91	FEB 91
MCCONNELL AFB, KS	JUL 89	FEB 91	FEB 91
EAKER AFB, LA	JUL 89	FEB 91	FEB 91
BARKSDALE AFB, LA	JUL 89	MAR 91	MAR 91
DYESS AFB, TX	JUL 89	MAR 91	MAR 91
F.E. WARREN AFB, WY	AUG 89	MAR 91	MAR 91
MINOT AFB, ND	JUL 89	MAR 91	MAR 91
MALMSTROM AFB, MT	AUG 89	MAR 91	MAR 91
FAIRCHILD AFB, WA	AUG 89	MAR 91	MAR 91
CASTLE AFB, CA	AUG 89	APR 91	APR 91
VANDENBURG AFB, CA	AUG 89	APR 91	APR 91
CARSWELL AFB, TX	JUL 89	APR 91	APR 91
ELLSWORTH AFB, SD	JUL 89	APR 91	APR 91
GRAND FORKS AFB, ND	JUL 89	APR 91	APR 91
BEALE AFB, CA	AUG 89	APR 91	APR 91
MARCH AFB, CA	AUG 89	MAY 91	MAY 91

SAC FULL OPERATIONAL CAPABILITY: MAY 1991

4. MILITARY AIRLIFT COMMAND (MAC) INSTALLATION SCHEDULE			
HURLBURT FLD, FL	JUL 89	MAY 91	MAY 91
POPE AFB, NC	JUL 89	MAY 91	MAY 91
ANDREWS AFB, MD	JUL 89	MAY 91	MAY 91
McGUIRE AFB, NJ	AUG 89	MAY 91	MAY 91
KIRTLAND AFB, NM	JUL 89	MAY 91	MAY 91
LITTLE ROCK AFB, AR	JUL 89	JUN 91	JUN 91
ALTUS AFB, OK	JUL 89	JUN 91	JUN 91
CHARLESTON AFB, SC	AUG 89	JUN 91	JUN 91
TRAVIS AFB, CA	AUG 89	JUN 91	JUN 91
McCHORD AFB, WA	AUG 89	JUN 91	JUN 91
RHEIN MAIN AB, GE (EUROPE)	SEP 89	SEP 91	SEP 91
TEMPLEHOF GE APT,GE (EUROPE)	SEP 89	SEP 91	SEP 91
LAJES FLD, AZ (EUROPE)	SEP 89	APR 92	APR 92

MAC FULL OPERATIONAL CAPABILITY, CONUS: APRIL 1991

5. USAF EUROPE (USAFE) INSTALLATION SCHEDULE

		SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
SPANGDAHLEM AB, GE		SEP 89	JUL 91	JUL 91
HESSISCH OLENDORF AB, GE		SEP 89	JUL 91	JUL 91
LEIPHEIM AB, GE		SEP 89	JUL 91	JUL 91
AHLHORN AB, GE		SEP 89	JUL 91	JUL 91
NORVENICH AB, GE		SEP 89	AUG 91	AUG 91
MORBACH AB, GE		SEP 89	AUG 91	AUG 91
BITBURG AB, GE		SEP 89	AUG 91	AUG 91
HAHN AB, GE		SEP 89	AUG 91	AUG 91
ZWEIBRUCKEN AB, GE		SEP 89	SEP 91	SEP 91
SEMBACH AB, GE		SEP 89	SEP 91	SEP 91
RHEIN MAIN AB, GE	(MAC)	SEP 89	SEP 91	SEP 91
TEMPLEHOF GEN ARPT, GE	(MAC)	SEP 89	SEP 91	SEP 91
RAF LAKENHEATH , UK		SEP 89	OCT 91	OCT 91
RAF ALCONBURY, UK		SEP 89	OCT 91	OCT 91
RAF KEMBLE, UK	(AFLC)	SEP 89	OCT 91	OCT 91
RAF FAIRFORD, UK		SEP 89	OCT 91	OCT 91
RAF CHICKSANDS, UK		SEP 89	NOV 91	NOV 91
RAF MILDENHALL, UK		SEP 89	NOV 91	NOV 91
RAF BENTWATERS, UK		SEP 89	NOV 91	NOV 91
RAF UPPER HAYFORD, UK		SEP 89	NOV 91	NOV 91
RAF GREENHAM COMMON, UK		SEP 89	DEC 91	DEC 91
SOSTESTERBURG AB, NETH		SEP 89	DEC 91	DEC 91
OSLO, NO		SEP 89	DEC 91	DEC 91
SAN VITO AS, IT		SEP 89	DEC 91	DEC 91
COMISO AS, IT		SEP 89	DEC 91	DEC 91
DECIMOMANNU AB, IT		SEP 89	JAN 92	JAN 92
AVIANO AB, IT		SEP 89	JAN 92	JAN 92
HELLENIKON AB, GR		SEP 89	JAN 92	JAN 92
IRAKLION AS, CR		SEP 89	JAN 92	JAN 92
INCIRLIK AB, TU		SEP 89	FEB 92	FEB 92
ANKARA AB, TU		SEP 89	FEB 92	FEB 92
PIRINCLIK AB, TU		SEP 89	FEB 92	FEB 92
IZMIR AB, TU		SEP 89	MAR 92	MAR 92
TORREJON AB, SP		SEP 89	MAR 92	MAR 92
MORON AB, SP		SEP 89	MAR 92	MAR 92
ZARAGOZA AB, SP		SEP 89	APR 92	APR 92
LAJES FLD, AZ	MAC	SEP 89	APR 92	APR 92

EUROPE FULL OPERATIONAL CAPABILITY : APRIL 1992

		SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
6. ALASKAN AIR COMMAND (AAC) INSTALLATION SCHEDULE				
ELMENDORF AFB, AK	**	OCT 89	APR 92	APR 92
EILESON AFB, AK		OCT 89	JUL 92	JUL 92
AAC FULL OPERATIONAL CAPABILITY : JULY 1992				
7. PACIFIC AIR COMMAND (PACAF) INSTALLATION SCHEDULE				
HICKAM AFB, HI		AUG 89	JUL 92	JUL 92
ANDERSON AB, GU		OCT 89	JUL 92	JUL 92
CLARK AB, PI		OCT 89	AUG 92	AUG 92
YOKOTA AB, JA		OCT 89	AUG 92	AUG 92
OSAN AB, ROK		OCT 89	AUG 92	AUG 92
KUNSAN AB, ROK		OCT 89	AUG 92	AUG 92
MISAWA AB, JA		OCT 89	SEP 92	SEP 92
TAEGU AB, ROK		OCT 89	SEP 92	SEP 92
KWANG-JU AB, ROK		OCT 89	SEP 92	SEP 92
SUWON AB, ROK		OCT 89	SEP 92	SEP 92
PACAF FULL OPERATIONAL CAPACITY: SEPTEMBER 1992				
8. AF SYSTEMS COMMAND (AFSC) INSTALLATION SCHEDULE				
HANSCOM AFB, MA		JUN 90	OCT 92	OCT 92
PATRICK AFB, FL		JUN 90	OCT 92	OCT 92
EDWARDS AFB, CA		JUN 90	OCT 92	OCT 92
LOS ANGELES AFS, CA		JUN 90	OCT 92	OCT 92
BROOKS AFB, TX		JUN 90	OCT 92	OCT 92
AFSC FULL OPERATIONAL CAPABILITY : OCTOBER 1993				
9. SPACE COMMAND (SPACECOM) INSTALLATION SCHEDULE				
PETERSON AFB, CO		JUL 90	NOV 92	NOV 92
SPACOM FULL OPERATIONAL CAPABILITY : NOVEMBER 1992				

	SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
10. AIR TRAINING COMMAND (ATC) INSTALLATION SCHEDULE			
SHEPPARD AFB, TX	AUG 90	NOV 92	NOV 92
RANDOLPH AFB, TX	MAY 90	NOV 92	NOV 92
COLUMBUS AFB,MS	AUG 90	NOV 92	NOV 92
WILLIAMS AFB, AZ	AUG 90	NOV 92	NOV 92
REESE AFB, TX	AUG 90	DEC 92	DEC 92
VANCE AFB, OK	AUG 90	DEC 92	DEC 92
GOODFELLOW AFB, TX	AUG 90	DEC 92	DEC 92
KEESLER AFB, MS	AUG 90	DEC 92	DEC 92
LACKLAND AFB, TX	AUG 90	DEC 92	DEC 93
LOWRY AFB, CO	AUG 90	JAN 92	JAN 92
LAUGHLIN AFB, TX	AUG 90	JAN 92	JAN 92
ATC FULL OPERATIONAL CAPABILITY : JANUARY 1992			
11. AIR FORCE ACADEMY (AFA) INSTALLATION SCHEDULE			
AIR FORCE ACADEMY, CO	JUL 90	JAN 93	JAN 93
AIR FORCE ACADEMY FULL OPERATIONAL CAPABILITY: JANUARY 1993			
12. AIR UNIVERSITY (AU) INSTALLATION SCHEDULE			
MAXWELL AFB, AL		JAN 93	JAN 93
AIR UNIVERSITY FULL OPERATIONAL CAPABILITY: JANUARY 1993			
13. AIR FORCE LOGISTICS COMMAND (AFLC) INSTALLATION SCHEDULE			
MCCLELLAN AFB, CA	SEP 90	JAN 93	JAN 93
ROBINS AFB, GA	SEP 90	FEB 93	FEB 93
TINKER AFB, OK	SEP 90	FEB 93	FEB 93
KELLY AFB, TX	SEP 90	FEB 93	FEB 93
NEWARK AFS, OH	SEP 90	FEB 93	FEB 93
HILL AFB, UT	SEP 90	FEB 93	FEB 93
RAF KEMBLE, UK (EUROPE)	SEP 89	OCT 91	OCT 91
AFLC FULL OPERATIONAL CAPABILITY : OCTOBER 1993			

	SURVEY COMPLETE NLT	INSTALLATION COMPLETE NLT	REQUIRED OPER. (ROD)
14. NAVY FACILITIES INSTALLATION SCHEDULE			
NORFOLK NAS, VA		MAY 92	MAY 92
SIGONELLA NAS, SP		MAY 92	MAY 92
NAPLES NAS, IT		MAY 92	MAY 92
CUBI POINT NAS, PI		JUN 92	JUN 92
DIEGO GARCIA		JUN 92	JUN 92
ROTA, SP		JUN 92	JUN 92

NAVY FULL OPERATIONAL CAPABILITY: JUNE 1992

15. This schedule does not include Increment II equipment installation. However, facility and/or communications preparation should be accomplished concurrently with Increment I in accordance with this plan.

ANNEX B

EQUIPMENT PLACEMENT GUIDELINE

CONTENTS

ANNEX B

EQUIPMENT PLACEMENT GUIDELINE

INCREMENT I

1. TMO Central Computer Area (See Figure B-1)

a. The TMO Central Computer Area contains one rack of equipment including minicomputers, tape backups, LAN equipment, modems, and a radio base station. Also in this area are an uninterruptable power source (UPS), the Standard Base Supply System interface microcomputer, and system administrator workstation. Site Prep Guide Section II.C and Annex E, Generic Project Support Letter, Atch 1 have equipment configurations, which are also displayed in Figure B-1.

b. Do you have an area in your TMO which contains the administrative offices of two or more of the four functional areas described earlier (Shipment Planning, Packing and Crating, Surface Freight, and Air Freight)?

If yes, this may be a good area for the main computer area - collocating as much equipment as possible saves installation costs.

If not, an office with one of the functions which is near to the others may suffice.

c. Does the chosen office space have air conditioning?

If not, choose another office area with air conditioning in the same general area. If an air conditioned office area is not available, check the operating temperatures allowable as detailed in Annex C. If your office is within these parameters, it should be fine; otherwise, air conditioning may be required. (See Annex C)

If it has A/C, this may be a proper place for the TMO Processor suite. Compare the operating environment with specifications found in Annex C.

d. Ensure you have desktop or table-top space available for two workstation microcomputers (system administrator workstation and SBSS interface) and two terminals.

2. High Speed Line Printer.

a. Should be located no more than 50 feet from the host minicomputers.

3. Standard Base Supply System (SBSS) Interface Computer.

a. Recommend you locate this computer in the main computer area.

b. If practical, place this microcomputer near a telephone currently in use to allow easy connection of the dedicated line to the SBSS computer. (See Annex D)

4. Shipment Planning Computer Configuration. (See Figure B-2)

a. The recommended spot for this equipment is in the shipment planning administrative office area. Temperatures and humidity outside the limits identified in Annex C should be avoided.

b. Ensure desktop space is available.

c. If this office is not in the same building as the main computer area, place the microcomputer near a telephone to allow easy connection to the main CMOS LAN.

d. See Annex C for power requirements for this and other computers.

5. Surface Freight Computer Configuration. (See Figure B-3)

a. The recommended spot for this computer is in the surface freight administrative office area. Temperatures and humidity outside the limits identified in Annex C should be avoided. If this equipment is placed in a bay work area, it should be covered when not in use.

b. Ensure desktop space is available.

c. The laser printer may be separated from the computer by no more than 50 feet. The laser printer will print GBLs and other forms - see Section II.A of the guide. If the printer is separated from the computer, CE should be informed in case any cable holes need to be drilled.

d. If this office is not in the same building as the main computer area, place the microcomputer near a telephone to allow easy phone connection to the CMOS LAN.

6. Air Freight Computer Configuration. (See Figure B-4)

a. The recommended spot for this computer is in the Air Freight administrative office area. Environmental factors are the same as for Surface Freight.

b. If this office is not in the same building as the main computer area, place the microcomputer near a telephone to allow easy phone connection to the CMOS LAN.

c. Power and size requirements are identified in Annex C.

7. Packing and Crating Computer Configuration. (See Figure B-3)

a. The recommended position for this computer is in the Packing and Crating administrative office area, and similar precautions should be taken for climatic extremes as in the other functional area computers. Extra precautions must also be taken for protection from dust and other contaminations in this area. The maximum distance from the microcomputer to the laser printer is 50 feet.

b. If this office is not in the same building as the main computer area, place the microcomputer near a telephone to allow easy phone connection to the CMOS LAN.

c. Power and size requirements are identified in Annex C.

8. Air Clearance Authority (ACA) - Overseas only. This microcomputer should be placed in the central computer area or your ACA area. It requires desktop or table-top space for the microcomputer and printer. (See Figure B-2)

INCREMENT II - MOBILITY

1. Mobility Control Center (MCC). (See Figure B-2)

a. The workstation should be located in its functional area.

b. Connects to the CMOS LAN through a four-wire dedicated telephone line with a class C dial-up line as a back-up.

c. Although this work area is not included in Increment I and will not be installed at the same time as Increment I equipment, preparation for the workstation should be accomplished at the same time as Increment I preparation.

2. Transportation Control Unit (TCU). The same placement factors apply to the TCU terminals as apply to the MCC, outlined in para 9 above. (See Figure B-4)

3. Air Cargo Terminal (ACT). The same placement factors apply to the ACT terminal as apply to the MCC. (See Figure B-3)

4. Air Passenger Terminal (APT). The same placement factors apply to the APT terminal as apply to the MCC. (See Figure B-4)

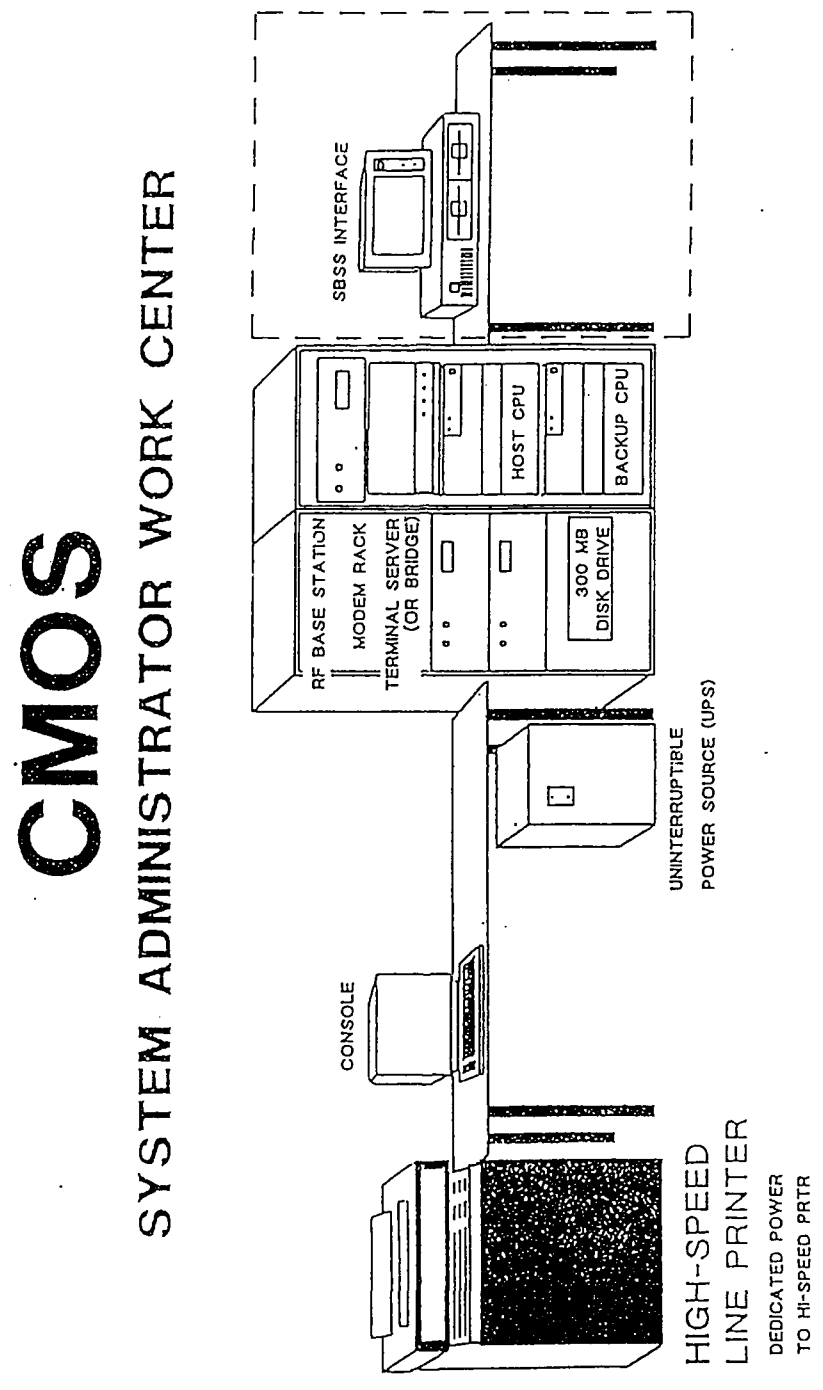
5. Sub-Motor Pool (SMP). The same placement factors apply to the SMP terminal as apply to the MCC. (See Figure B-2)

6. Load Planning (LP). The same placement factors apply to the LP terminal as apply to the MCC. (See Figure B-5)

7. LGTX Plans And Programs. Should be placed in the functional area but is a stand-alone TEMPEST terminal, not to be connected to the CMOS LAN. (See Figure B-2)

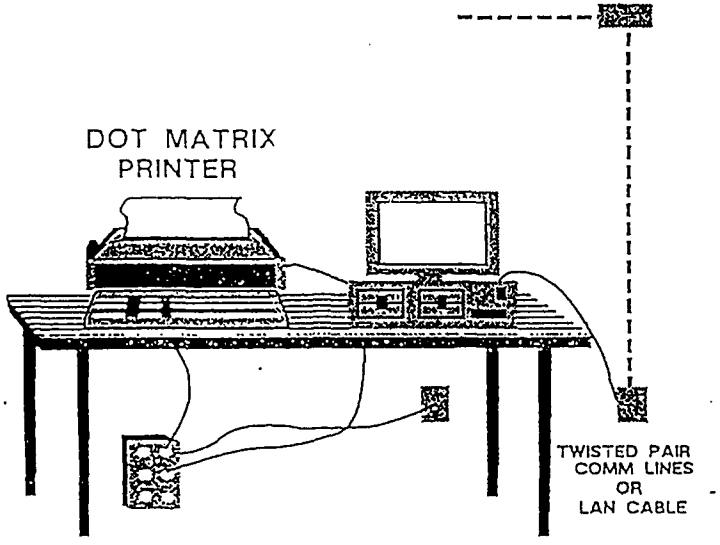
8. Interface with Combat Ammunition System (CAS).
This terminal will be installed in the munitions complex near the CAS system but does not connect to it. This workstation should connect to the CMOS LAN the same way as the MCC workstation. (See Figure B-2)

9. MAJCOM Logistics Readiness Center (LRC) or its equivalent. The same placement and connection factors apply to the LRC workstation as apply to the MCC. (See Figure B-2)



System Administrator Work Center
Figure B-1

TYPE A WORKCENTER LAYOUT



APPROX 5 AMPS @ 120V

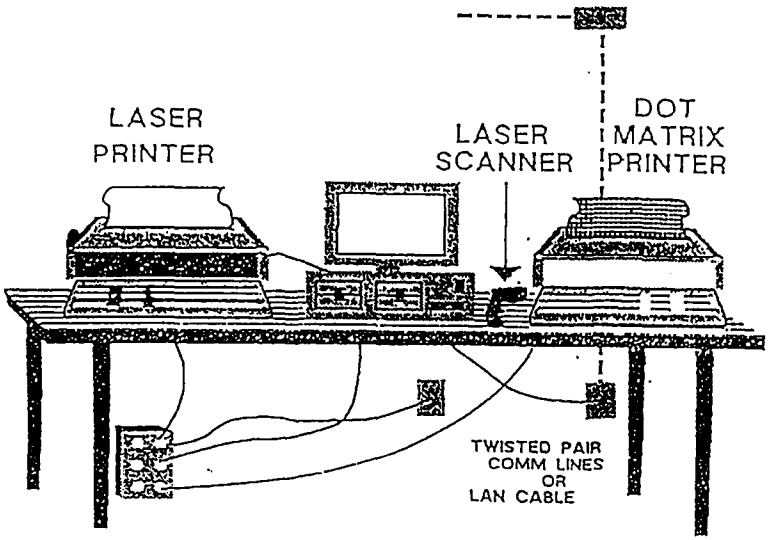
Type A Work Center Layout
Figure B-2

APPLICABLE WORKCENTERS

AIR CLEARANCE AUTH
SHIPMENT PLANNING
MOBILITY CONTROL CENTER
SUB MOTOR POOL
CAS-B
HQ LRC
*LGTX (TEMPEST TERMINAL)

*NO LAN OR COMM CONNECTION

TYPE B WORKCENTER LAYOUT



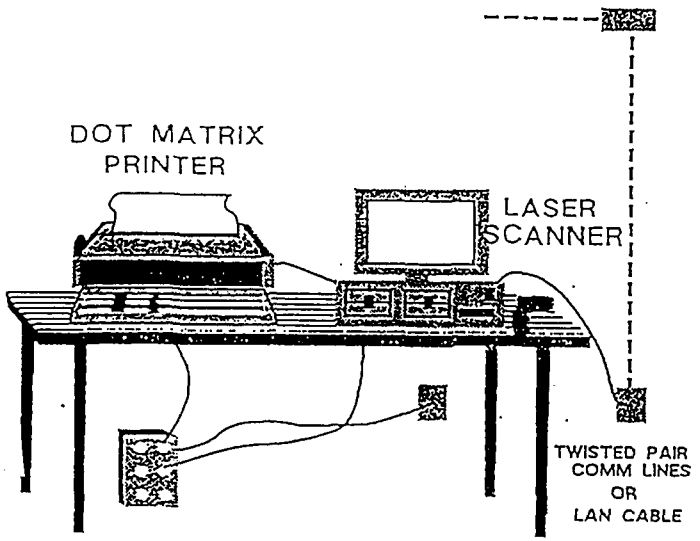
APPROX 12 AMPS @ 120V

Type B Work Center Layout
Figure B-3

APPLICABLE WORKCENTERS

SURFACE FREIGHT
PACKING & CRATING
AIR CARGO TERMINAL

TYPE C WORKCENTER LAYOUT



APPROX 5 AMPS @ 120V

Type C Work Center Layout
Figure B-4

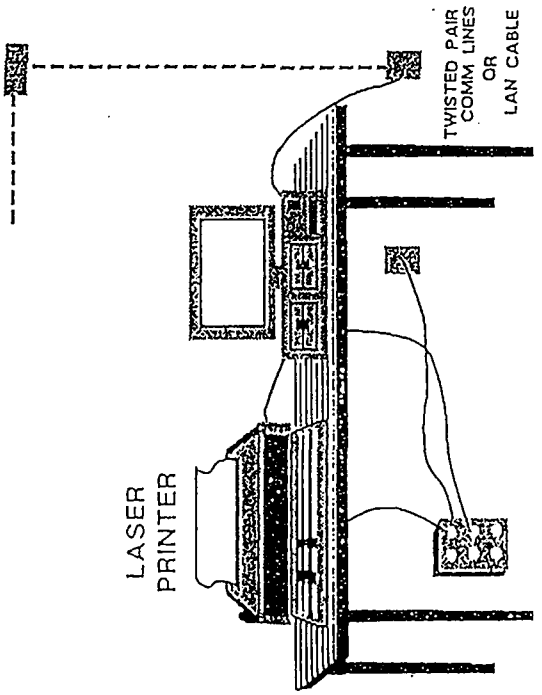
APPLICABLE WORKCENTERS

AIR FREIGHT
TRANS CONTROL UNIT
AIR PASSENGER TERMINAL

TYPE D WORKCENTER LAYOUT

APPLICABLE WORKCENTERS

LOAD PLANNING



Type D Work Center Layout
Figure B-5

ANNEX C

CIVIL ENGINEERING SUPPORT REQUIREMENTS

CONTENTS

ANNEX C

CIVIL ENGINEERING SUPPORT REQUIREMENTS

1. Responsibility:

a. The Base Civil Engineer will assign the necessary representatives to the Site Survey Team. These individuals should have the appropriate expertise to determine specific facility support requirements to meet the criteria in this annex.

b. The Survey Team member will:

(1) Prepare drawings and sketches as required in Appendix II of this annex.

(2) Ensure that facility support requirements are minimized.

(3) Assist in preparation of documentation as required by this guide and all applicable regulations (i.e., PSA, AF Form 332, AF Form 1391, etc.)

(4) Track preparation of required project/work orders.

(5) Provide final cost estimates and programming documents to the base Comm/SCX to complete validation and funds transfer requirements. (See Section III.C for funding procedures)

(6) Report progress of the facility support to the Base CMOS Manager.

c. SSC/AQAE (Civil Engineering Division of SSC) will provide a point of contact for questions or problems concerning Civil Engineering actions (AV 446-4940/41).

2. General Equipment Support Information:

a. The equipment will be 120V/60Hz or 230V/50Hz depending on the standard for each base. Most equipment is switchable. All equipment will be provided with standard NEMA plugs. In locations where a 230V/50Hz system is installed, appropriate plug adapters will have to be utilized. These adapters will be locally procured to match the design provided by CE.

b. The CMOS equipment shall operate within the facility constraints and environmental tolerances stated below. These are the most stringent requirements of the equipment to be supplied.

(1) Central Computer Room

(a) Space. The space requirements will range from 100 to 150 square feet footprint depending on the proposed facility layout.

(b) Floor. Equipment shall not require raised flooring. The flooring may be carpeted. There will be no special static control facilities.

(c) Access Route. Personnel will be required to install systems in office buildings with access being a normal office doorway.

(d) Air Conditioning. The ambient temperature will be maintained by the Government between 60 and 90 degrees F., with a relative humidity of between 20 and 80 percent noncondensing. No static electricity control or chilled water facilities will be required. Dust control is only required in areas that do not meet administrative facility standards.

(e) Altitude. All equipment shall operate at altitudes from sea level to 8,000 feet.

(f) Electrical Power. The TMO processors and the System Administrator workstation should operate with power from commercial sources through an Uninterruptable Power Source (UPS) to be supplied with the equipment. All components will be 120 volts 60 Hz or 230 volts 50 Hz single phase, with grounded three wire NEMA connections. It is recommended that branch circuits be dedicated to the electronic equipment. The Government is required to provide panels, conduit or cables, wiring, and required receptacles within 3 feet of each piece of computer hardware as located by the site survey team. The computer hardware requires a solid neutral ground.

(g) Fire Protection. Halon type manual fire extinguishers should be provided (consult Base Fire Marshall to obtain these).

(2) Workcenters. Equipment can be installed in various office environments. Terminals and printers will fit on normal table tops or desk tops. The equipment will be provided to match the voltage and cycle for the various geographic locations unless another alternative is deemed best. Standard electrical receptacles will provide electrical power. Each terminal site will require one standard 20 amp receptacle (may be different overseas). It is recommended that these branch circuits be dedicated to the electronic equipment at each non-collocated site. Other equipment such as coffeemakers, fans, or microwave ovens must not be connected into the same branch circuits used for the data communications equipment.

3. Civil Engineering Support:

a. Introduction:

(1) After the equipment location and configuration have been confirmed by the Site Survey Team, the facility support requirements can be determined. Support requirements should be only those items essential to the proper operation of the equipment. Every effort should be made to minimize the support costs.

(2) The PSA requires facility drawings (See Table C-2 of this Annex) that should be available during the site survey. All sketches indicated should be prepared/updated during the site survey and included as a part of the PSA. This ensures that the survey team members concur with all information.

b. Central Computer Area:

(1) Power Requirements. (See Table C-1 of this Annex)

(a) Specific power requirements are obtained from Table C-1 of this annex and the equipment configuration as determined by the Site Survey Team.

(b) The suggested method for providing power is to install a new panel of appropriate capacity with distribution at equipment locations. The new panel should feed from the main service equipment. The panel should be fed from a faraday shielded isolation transformer to provide clean power. The new panel should be provided with an isolated ground and all new receptacles should be isolated ground type.

(c) The line printer and the UPS each need a dedicated circuit of appropriate capacity.

(d) The need for supplemental cooling must be examined with this requirement.

(e) A sketch of the proposed power distribution shall be included in the PSA. This will ensure that the location and quantity of receptacles are agreed to by the survey team. Existing outlets should be indicated. It should be recognized that a load study of the existing circuits and panels will be necessary to determine the final design, and this is only intended to supply design requirements to the engineering staff. (See Figure C-1 and C-2 of this Annex)

(f) Several spare outlets should be provided to allow equipment on the UPS to be plugged in separately in case of failure or for the addition of new equipment.

(2) Air Conditioning Requirement:

(a) The specific heat load can be obtained from Table C-1 of this annex and the equipment configuration as determined by the Site Survey Team.

(b) See para 2.B.(1)(d) of this annex for equipment tolerances.

(c) The demand factors in Table C-1 of this annex indicate the approximate operating time of the equipment and should be considered when determining the actual requirement.

(d) The existing cooling system should be utilized when at all possible. Rebalancing, enlargement of supply ducts, and increasing blower speeds should be considered prior to the use of supplemental cooling equipment.

(e) The extraction of excess heat via exhaust fans should be considered where practical.

(f) If supplemental cooling is required, only the load created by the equipment should be considered. Any capacity above this amount must be justified through the Program Office.

(g) The sketch of this area should include A/C diffuser locations and size. Also include duct size if additional A/C is required.

(3) Structural Requirements:

(a) No special structural requirements exist for this program other than normal administrative facility criteria. AFR 88-15 requirements are applicable.

(b) An antenna for the radio base station will be required on or near this facility. Requirements for the mounting of this antenna and routing of the cable will be excluded from this site survey since radio requirements are not complete at this time.

(c) Local security requirements should be verified.

(4) Fire Protection: See para 2.B.(1)(g) of this annex.

c. Work Centers:

(1) Power Requirements:

(a) Specific power requirements are obtained from Table C-1 of this annex and the equipment configuration as determined by the Site Survey Team.

(b) The load of the workcenter equipment in the

same facilities as the central computer should be fed from the new panel (power cables should not exceed 125 feet). Equipment located in other facilities should utilize existing circuits. The equipment will plug into a spiker box for protection, which also minimizes the receptacle requirement (See Appendix III of this annex).

(2) Air Conditioning Requirements:

(a) The specific heat load can be obtained from Appendix I of this annex and the equipment configuration as determined by the Site Survey Team.

(b) See para 2.B.(1)(d) of this annex for equipment tolerances.

(c) The CMOS equipment should require no supplemental cooling when installed in normal administrative areas. The requirement for additional cooling in workcenters must be justified through the Program Office.

(d) The workcenter sketches should include A/C diffuser locations and sizes when additional A/C is required.

(3) Structural Requirements: No structural alterations are required providing the workcenter is located in an administrative area. The construction of new administrative space will only be approved by the Program Office under unusual site conditions.

(4) Fire Protection: See para 2.B.(1)(g) of this annex.

d. Civil Engineering LAN Support: (See Annex D)

(1) The requirement for wall penetrations for LAN cables and interior telephone cable conduits should be included as part of the CE work. Actual location and size of conduits and penetrations will be determined by cable size requirements.

(2) Drawings. The LAN cable routing sketch should identify:

(a) Wall construction.

(b) Ceiling construction.

(c) Obstacles/penetrations.

(d) Dimensions (vertical and horizontal).

Table C-1 Equipment Power/Heat Criteria

EQUIPMENT POWER/HEAT CRITERIA

EQUIPMENT	WATTS	STARTING AMPS CONUS/OS	BTUH	DEMAND FACTOR %	NOTES
AT&T 3B2 COMPUTER	900	7.5/3.3	1700	100	1
SYSTEM ADMIN	720	6/3	1700	100	1
SBSS INTERFACE	360	3/1.5	600	100	1
LINE PRINTER	2000	16/8	4600	15	2
UPS	3000	--	400	100	2,3
LAN TERMINAL SERVER	120	1/0.5	300	100	2
Z248 PC (INC I & II WORKSTATIONS)	360	3/1.5	600	100	2
DOT MATRIX PRINTER	250	2/1	600	60	-
LASER PRINTER	1000	9/4.5	2400	40	-
SPIKER BOX	--	-	-----		-
HAND-HELD TERMINAL AND CHARGER	--	-	---	---	4
MODEM	12	.1/.05	20	100	-
MODFM RACK	216	2/1	400	100	5

NOTES:

1. Powered thru the UPS.

2. Dedicated circuit.

3. Will have a NEMA 5-50P plug (50 Amp circuit) for 120V application and NEMA 6-30P (30 Amp circuit) plug for 230V application.

4. Very minimal power draw.

5. Based on 18 modem cards (12 watts per modem card).

Table C-2 Drafting Support

DRAFTING SUPPORT

The following is a list of maps, drawings, sketches, and required information needed for the PSA. The sketches can be drawn on 8 1/2 x 11 paper free hand as long as the required details are included and they are drawn to scale. Examples of As-built drawings, which can be obtained from BCE, are provided in Annex E, Attachment 7.

Base Map

CMOS Increments I and II facility locations
SBSS location
Base COMM Switch location
DDN Host/Node location

Drawings/sketches

CMOS I and II Facility Floor Plans (with dimensions)

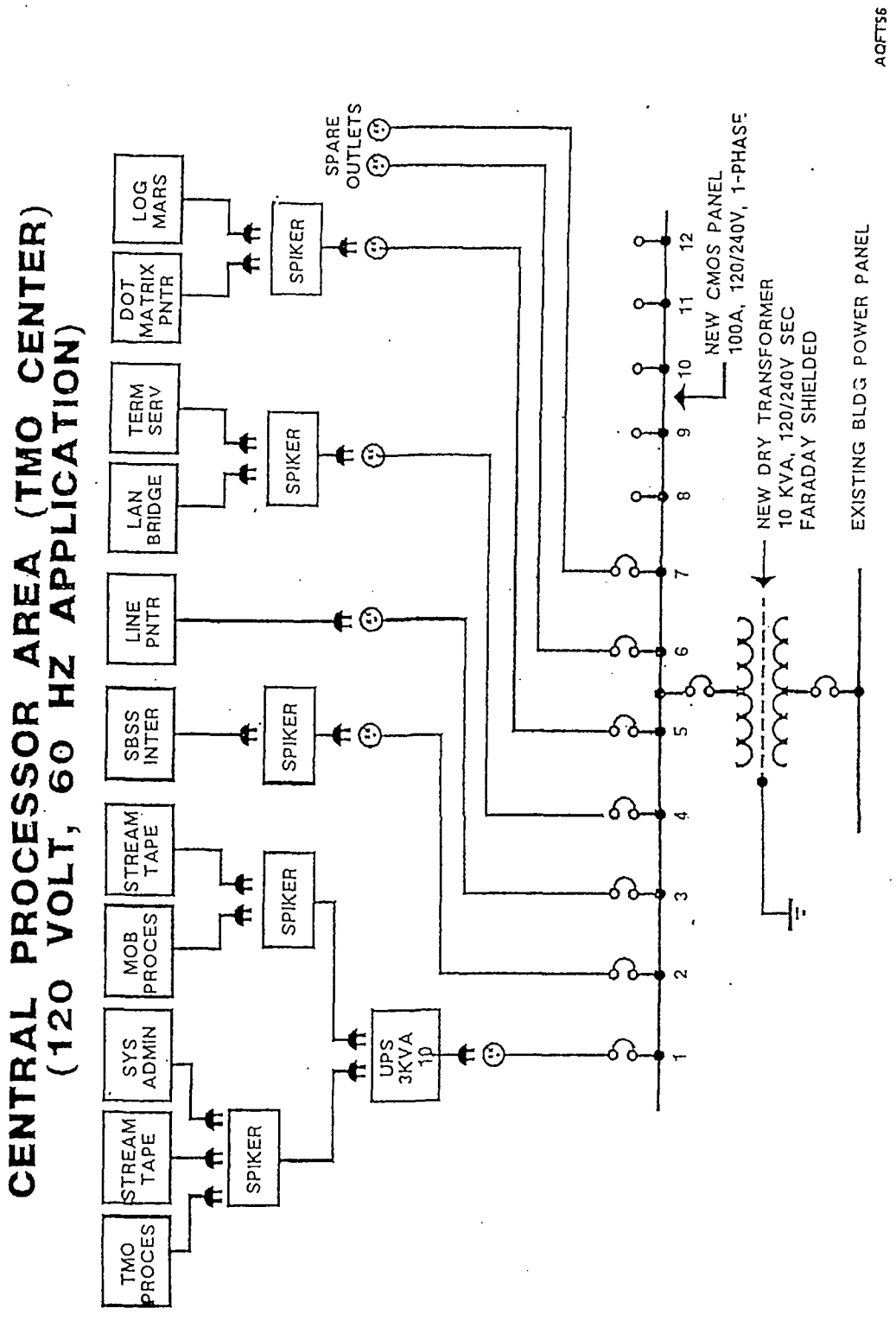
Equipment location
Power panel locations
Telephone back board location
Main power drop and transformer
A/C locations and tonnage (IF UPGRADE REQUIRED)
Proposed radio antenna location

CMOS Central Computer Area

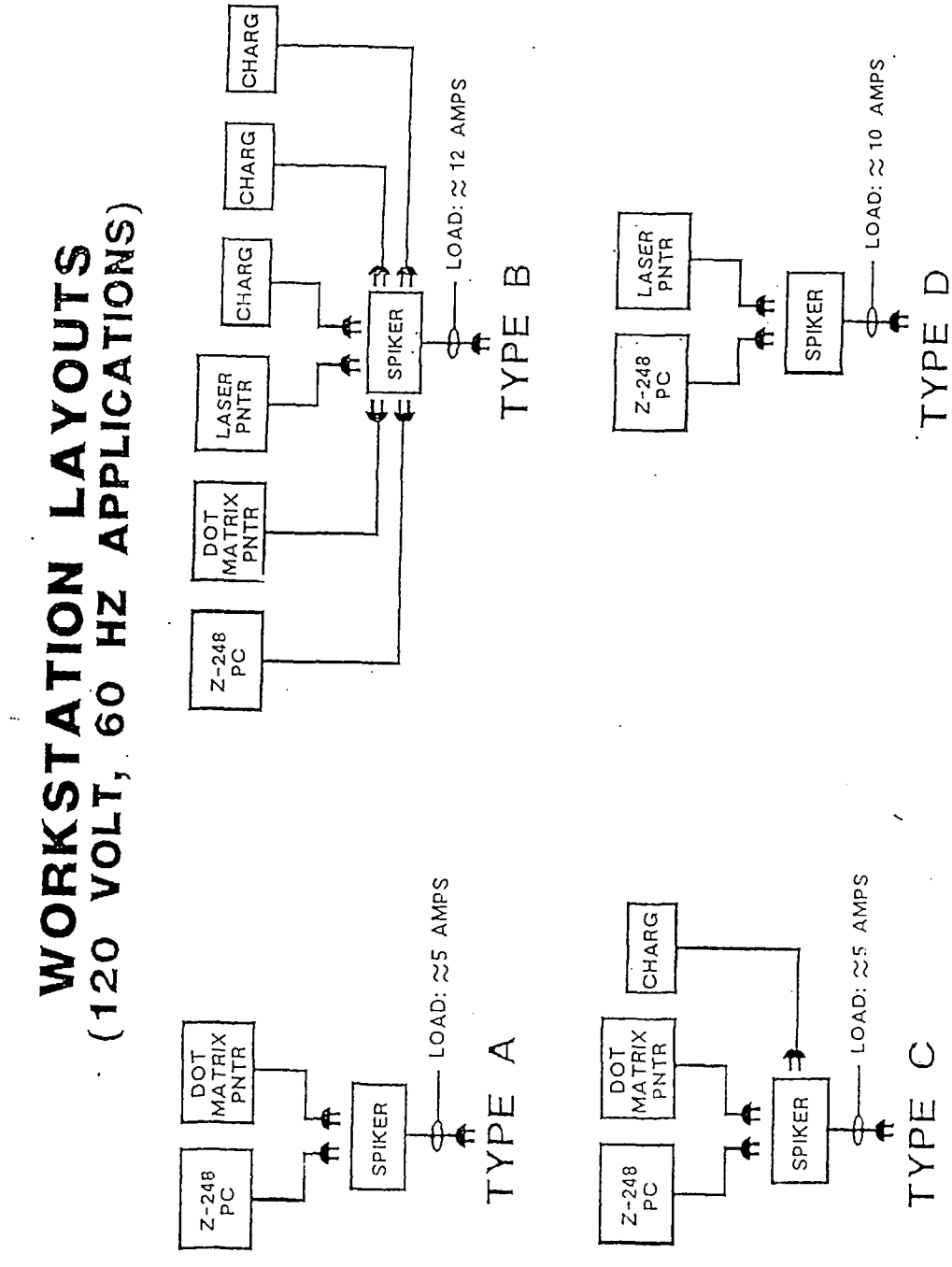
Floor plan
Equipment layout
Existing receptacles
Existing A/C diffusers (IF UPGRADE REQUIRED)
Proposed power distribution
Show dimensions to include ceiling heights, widths and lengths of walls and placement of power receptacles, telephone jacks, etc.

CMOS I and II Work Centers

Floor plans
Equipment layouts
Existing receptacles (IF UPGRADE REQUIRED)
Existing A/C diffusers (IF UPGRADE REQUIRED)
Show dimensions to include ceiling heights, widths and lengths of walls and placement of power receptacles, telephone jacks, etc.



Central Processor Area (TMO Center)
(120 Volt, 60 hz Application)
Figure C-1



Workstation Layouts
(120 Volt, 60 hz Application)
Figure C-2

ANNEX D

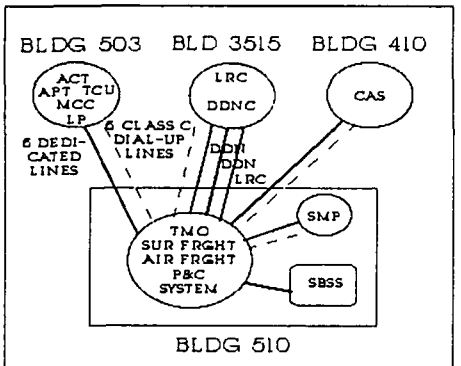
COMMUNICATIONS REQUIREMENTS

CONTENTS

ANNEX D

COMMUNICATIONS REQUIREMENTS

1. **GENERAL.** The Cargo Movement Operations System (CMOS) requires a robust communication backbone to operate properly. The purpose of this annex is to highlight the process of obtaining necessary support from the base communications unit.



(Figure D-1)
Sample Bubble Chart

2. **BUBBLES.** The first step is to make a diagram showing the relationship and communication requirements between equipment according to building and workcenter. After determining the workcenter location where the CMOS host computer equipment will physically reside, group the other work centers into "bubbles" according to workcenter proximity. For example, if the packing and crating function is co-located with shipment planning in warehouse A, then warehouse A is a single bubble. (See Figure D-1) Use dash lines to represent twisted 4-wire dedicated telephone wire (9600 Baud) and solid lines to represent dial-up Class C (2400/1200 Baud) lines through the central switch.

3. **WORKCENTER COMMUNICATION REQUIREMENTS.** After assigning the workcenters to their respective bubbles, the next task is to connect the workcenters with communications media. System communications requirements are as follows:

a. CMOS will require two (2) four-wire dedicated circuits from the CMOS host location (determined by the base TMO) to the building which houses the Defense Data Network (DDN) Concentrator. CMOS will provide both ends of the circuits with the required modems.

b. CMOS will require one (1) four-wire dedicated circuit from the CMOS host location (determined by the base TMO) to the building which houses the Standard Base Level Computer (SBLC) which runs the Standard Base Supply System (SBSS). CMOS will provide both ends of the circuits with the required modems.

c. Any workstation located in the same building as the CMOS host computer (the ATT 3B2 600 minicomputer from the Multi-User contract) will be directly connected via the LAN installed by our SETA contractor. As a backup to the LAN, the SETA contractor will install JK-4 (interior phone wire) to provide modem access

to the CMOS host. An inside/outside plant technician is required to survey the workstation locations to determine a cable route path, including vertical and horizontal cable runs for both the LAN cable (one-half inch diameter, coaxial) and the internal wiring. The radius of any bends in the coaxial LAN cable should be at least one foot where possible. Identify the length of cable required, whether any holes need to be drilled in walls, the types of walls (sheet-rock, brick, etc.), and the types of ceilings (dropped, sheet-rock, height, etc.). We also need the comm unit to provide the internal wire materials.

d. Any workstation which is not located in the same building as the CMOS host computer will require a dedicated 9600 baud four-wire circuit to the building housing the CMOS host computer. A dial-up 1200/2400 baud circuit via the base telephone switch will be required as a backup for each workstation computer.

e. The building with the CMOS host computer will require as many four-wire circuits and dial-up lines as allocated in para 3.d above. These lines should all terminate in the immediate vicinity of the CMOS host equipment.

f. All computer equipment will be purchased by the program office. Maintenance for the equipment will be procured via the contract from which the equipment is ordered.

4. **AF FORM 3215 REQUIREMENTS.** To obtain the circuit support from the base communications unit, the CMOS Program Support Agreement (PSA) must include an AF Form 3215, Communications - Computer Systems Requirements Document (CSRD). Complete the AF Form 3215 in accordance with local base communications regulations.

(NOTE: If your base communications unit cannot satisfy the CMOS requirements, notify SSC/AQ/AQFT, Gunter AFB, AL with information copies to MAJCOM LGTT/SCX. This will give the Program Office adequate lead time to work the issue with the Air Staff.

5. **DDN REGISTRATION AND CONNECTIVITY:** CMOS will use the Defense Data Network (DDN) for long-haul communications. At each base, CMOS must be registered in the DDN User Requirements Data Base (URDB). The CMOS Program Management Office (PMO) and MAJCOM LGT POCs have registered CMOS at all bases, so your base is registered for DDN.

COMMUNICATIONS - COMPUTER SYSTEMS REQUIREMENTS DOCUMENT	1. CSRD NUMBER

PART I *(REQUIREMENT)*

2. SUBJECT/PROJECT TITLE	3. ORIGINATOR
CARGO MOVEMENT OPERATION SYSTEM (CMOS)	G[illegible] E[illegible] [illegible]GT,USAF 12 APR 89

4. PRIORITY	5. ROD/POD *(circle one)*	6. PROCESS CLASSIFIED	7. SENSITIVE UNCLASSIFIED	8.
☒ ROUTINE ☐ URGENT	OCT 90	☐ YES ☒ NO	☐ YES ☒ NO	03-07

9. REQUIREMENT:

a. From bldg 810, two(2) four-wire circuits to bldg PB-71 which houses LP, TCU, and ACT.
b. From bldg 810, two(2) four-wire circuits to bldg 428 which houses MCC, APT, and SMP.
c. From bldg 810, one(1) four-wire circuit to bldg 810 which houses the DCP-40 (SBSS) Sperry 1100/60.
d. From bldg 810, two(2) switched telephone circuits w/numbers to the Base Munitions Office
e. Three(3) phones added to bldg PB-71.
f. Three(3) phones added to bldg 428.

10. JUSTIFICATION

The Cargo Movement Operation System.CMOS) will support regular and crisis base level cargo processing, documentation, movement and tracking. This is a downward directed requirement with an Air Force precedence rating of 2-6 (FADDII). HQ USAF Program Management Directive (PMD) 5272(2)138610F dated Jun 1988 is required for the above requirements.

11. IMPACT IF DISAPPROVED

Actions required by PMD will not be accomplished.

Enter appropriate mission impact code
A - Mission Failure
B - Serious Mission Degradation
C - Mission Impact

C

12. HQ SCC/AQFT	13. Capt. I[illegible] AV 44[illegible]/20[illegible]
14.	15.
16. USER/POINT OF CONTACT [signature] 12 April 89	17.

PART II *(TECHNICAL SOLUTION AND COSTING)*

18. PROPOSED SOLUTION/ALTERNATIVES

AF Form 3215, APR 87 PREVIOUS EDITION IS OBSOLETE

Sample AF Form 3215
Figure D-2

INSTRUCTIONS FOR COMPLETING AF FORM 3215

1. The following are step-by-step instructions on how to complete an Air Force Form 3215, Communications - Computer Systems Requirements Document. These instructions are Air Force generic. Each activity should consult with their local communications organization to ensure any MAJCOM/local requirements are included.

BLOCK 1. CSR NUMBER Leave Blank

BLOCK 2. SUBJECT/PROJECT TITLE Cargo Movement Operations System (CMOS).

BLOCK 3. ORIGINATOR Enter your unit and office symbol.

BLOCK 4. PRIORITY This should be marked ROUTINE; however, based on local communication workload, it could be marked URGENT. Consult your local comm squadron.

BLOCK 5. ROD/POD You should use a 'ROD' date; therefore 'POD' should be crossed out and 'ROD' circled. 'ROD' is an acronym for Required Operational Date. There is a specific format that is to be used when entering this date. Also, the date will be based on the site preparation complete date. Consult your local communications unit to ensure the proper format/date is used.

BLOCK 6. PROCESS CLASSIFIED Check 'No'

BLOCK 7. SENSITIVE UNCLASSIFIED Check 'Yes'

BLOCK 8. (For Local Use)

BLOCK 9. REQUIREMENT See PSA Attachment 5.

BLOCK 10. JUSTIFICATION Fulfillment of functional requirements outlined in PMD no. 5272(2)/38610F. CMOS's AF precedence rating is 2-06 (FAD II). CMOS will automate base-level traffic management. It is a war and peacetime system which will provide real-time cargo movement visibility and improve force deployment.

BLOCK 11. IMPACT IF DISAPPROVED CMOS won't function according to the direction of PMD number 5272(2)/38610F. Delays will have schedule and cost impact.

BLOCKS 12 - 15. (For Local Use)

BLOCK 16. USER/POINT OF CONTACT Enter your CMOS POC's name, title, unit, phone number, and signature.

BLOCK 17. Enter your unit commander's name, title, and signature.

2. The remaining blocks on the form will be completed by the communications organization and requirements boards at the base and MAJCOM levels.

3. Information on how to submit the AF Form 3215 and how it is handled/approved for each activity should be obtained from the local communications organization. Here is where your communications representative on your local CMOS Coordinating Committee can be a big help in getting this action completed.

4. Each CMOS POC should make copies of every document associated with this action and maintain it on file for backup.

5. Please contact the Standard Systems Center (SSC/AQFT) at Gunter AFB AL, at AUTOVON 446-5604 or commercial (205) 279-5604.

ANNEX E

GENERIC PROGRAM SUPPORT AGREEMENT

CONTENTS

ANNEX E

GENERIC PROGRAM SUPPORT AGREEMENT

1. INTRODUCTION: The purpose of this generic PSA is to outline functional responsibilities for equipment siting and site preparation and installation requirements. When completed, it will outline the agreements of all agencies represented at the site survey and is an official document providing the authority for all tasked agencies to initiate preliminary implementation actions. Except as indicated below, this annex is intended as a guide only and is not a required format. The survey team may add any information deemed necessary and alter the format to tailor the PSA to their installation.

2. INSTRUCTIONS:

a. The information in brackets or presented as "********," should be replaced with specific names, office symbols, or information.

b. Para 2a - 2e. The dates in this paragraph are determined from Annex A and Tables III-1 and III-2. Add or subtract appropriate months.

c. Signatures can be as indicated or by staff summary sheet. However, the wing commander's signature must be on the PSA cover letter. If signatures are not on the PSA attachments as indicated, then the staff summary sheet should also be included with the PSA to certify that support will be provided.

d. Attachment 1, para 1. Include the names, office symbols, and phone numbers of all survey team members.

e. Attachment 1, para 2. Include the names, office symbols, and phone numbers of all personnel who provided information for the PSA.

f. Attachment 2. Provide a list of equipment based on your base's operational requirements. If one person functions as two workcenters, the second set of equipment should be deleted. Also delete workcenters that are not used. For the equipment configuration, use the reference numbers shown in the sample Attachment 2. If equipment for a workcenter or the central computer area is dispersed in two or more rooms, it should be indicated.

g. Attachments 4 and 5. Develop a full list by building of support required to implement the system.

h. Attachment 6. No additional response is required.

i. Attachment 7. Provide a set of drawings and sketches for

each facility. See the BCE to obtain copies of "As-built" drawings similar to the examples (ceiling plan, power plan, and floor plan) provided. Please provide one copy of these plans with no additional marks except facility updates which are not on the original. If appropriate, you can provide a second copy of the floor plan with equipment placement and any other color codes or identifying marks which will make your document understandable to the engineer who will order the components to install your LAN. Any additional sketches you provide along with the As-built drawings can be 8-1/2" x 11" free hand as long as the required details are included and they are drawn to scale.

PROGRAM SUPPORT AGREEMENT LETTER

FROM: (WING COMMANDER)

SUBJECT: **Program Support Agreement for ******* AFB, ** Cargo Movement Operations System (CMOS)**

TO: HQ ******/LGT/SCXP
SSC/AQFT

1. Program Information:

a. This Program Support Agreement (PSA) documents the plans and responsibilities for the preparation of specific facilities to receive CMOS equipment at ******* AFB. (Atch 3 provides equipment requirements, configuration, and location.)

b. The purpose of this PSA is to outline functional responsibilities for site preparation and placement of equipment. This PSA outlines agreements of all agencies represented at the site survey and is an official document providing the authority for all tasked agencies to initiate preliminary implementation actions. The CMOS program will support regular and crisis base-level cargo processing, documentation, movement, and tracking. This is a downward-directed requirement with an Air Force precedence rating of 2-6 (FADD II).

c. Authority for the site survey is HQ USAF Program Management Directive (PMD) 5272(2)138610F, dated 21 Jun 19[illegible].

2. Implementation Schedule Dates: (Refer to Tables III-1 and III-2 for this paragraph.)

a. Site Support Completion: (ROD minus 4 months)

b. Equipment in place: (ROD minus 3 months)

c. Operational Test: (ROD minus 2 months)

d. Required Operational Date: (Annex A, ROD)

3. Site Survey Representatives. Attachment 1 is used to list the names of representatives involved in the site survey in Attachment 1. It also contains other points of contact.

4. Equipment Requirements and Locations. Attachment 2 outlines installation locations and site survey data.

5. Civil Engineering Support Requirements: Attachment 4 identifies facility alteration requirements. Attachment 3 contains equipment technical data.

6. Communication Support Requirements: Attachment 5 identifies communication support for interconnection of remote facilities to the CMOS Local Area Network (LAN).

7. LAN Support Requirements: Attachment 6 identifies LAN requirements.

8. Drawing and Reference Documents: Attachment 7 contains base, facility, and layout drawings to supplement the preceding attachments.

9. The ******/LGT (or SCX) will be responsible to track, coordinate, and report on progress. This depends on which unit managers the PSA. However, LGT will remain the primary POC at base-level.

10. Funding: The required facility modifications will be funded by the Program Management Office.

XXXX XXXXX, Col, USAF
Commander

7 Atch
1. Site Survey Representatives
2. Equipment Requirements and Locations
3. Equipment Power/Heat Criteria
4. Base Civil Engineering Support
5. Base Communications Support
6. LAN Support
7. Drawing List with Drawings

Distribution:	Copies
HQ ******/LGT	1
HQ ******/SCXP	1
SSC/AQFT	2
SSC/AQAE	2

CMOS PSA ATTACHMENT 1

SITE SURVEY REPRESENTATIVES

1. The information for this PSA was obtained during a site survey conducted from ********* to ********* by the following personnel:

NAME	ORGANIZATION	AUTOVON
CMOS PMO Representative(s) (Lead bases and OT&E bases only)		
MAJCOM Representative (As determined by MAJCOM)		
Host Base LGT Rep.		
Host Base LGX Rep.		
Host Base SC Rep.		
Host Base CE Rep.		

2. Site information contained herein was obtained from and coordinated with the following individuals:

NAME	ORGANIZATION	AUTOVON
**********	**********	*******
**********	**********	*******

CMOS PSA ATTACHMENT 2

EQUIPMENT REQUIREMENTS AND LOCATIONS

Equipment Locations

EXAMPLE ONLY

Base Equipment space will be made available in the following locations (See Note 1):

FUNCTION	EQUIPMENT	BLDG NO.	LOCATION (room #)	NOTE
Central Computer	1-7,10,11,14	_____	_____	1
Air Freight	7,8,10,12	_____	_____	1
Surface Freight	7,8,9,10	_____	_____	1
Shipment Planning	7,8,10	_____	_____	1
Packing & Crating	7.9,10,12	_____	_____	1
Mobility Control Center	7,9,10,13	_____	_____	1
Transp. Control Unit	7,8,10,12,13	_____	_____	1
Air Cargo Terminal	7,8,9,10,12,13	_____	_____	1
Air Passenger Term	7,8,10,12,13	_____	_____	1
Sub Motor Pool	7,8,10,13	_____	_____	1
Load Planning	7,9,10,13	_____	_____	1
Log Readiness Cntr	7,8,10,13	_____	_____	1
Combat Ammun Sys	7,8,10,13	_____	_____	1
Base GTX	7,8,10	_____	_____	1

NOTE: (Use notes below for each function as required)

1. See Attachment 2 for equipment reference numbers and tech data. (Other notes as required.)
2. Civil Engineering Support required.
3. Communication Support required.

EQUIPMENT REQUIREMENTS LIST

INCREMENT I

ITEM DESCRIPTION	QTY	UNIT	NOTES
TMO CENTRAL COMPUTER EQUIPMENT			
MINI-COMPUTERS			
AT&T 3B2 UNITS	2	EA	
45MB STREAMING TAPE	2	EA	
LAN CABLE (for all collocated equipment)	1	EA	
MODEM (for DDN connection)	2	EA	
MODEM	18	EA	
MODEM RACK (for dial-up connection)	1	EA	
LAN TERMINAL SERVER	1	EA	
CMOS MAIN AREA WORKCENTERS			
SYSTEM ADMINISTRATOR WORKSTATION	1	EA	
LINE PRINTER 300	1	EA	
SUPPLY INTERFACE			
SUPPLY INTERFACE WORKSTATION	1	EA	
MODEM (for SBSS computer connect)	1	EA	
AIR CLEARANCE AUTHORITY (ACA) INTERFACE (SELECTED OVERSEAS BASES)			
ACA INTERFACE PC	1	EA	
MODEM	2	EA	
AIR FREIGHT WORKCENTER EQUIPMENT			
AIR FREIGHT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	1	EA	
SURFACE FREIGHT WORKCENTER EQUIPMENT			
SURFACE FREIGHT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
LASER PRINTER	1	EA	
MODEM	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
SHIPMENT PLANNING WORKCENTER EQUIPMENT			
SHIPMENT PLANNING WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	1	EA	

PACKING AND CRATING WORKCENTER EQUIPMENT

PACKING AND CRATING WORKSTATION	1	EA
LASER PRINTER	1	EA
MODEM	1	EA
HAND-HELD TERMINAL & CHARGER	1	EA

INCREMENT II

ITEM DESCRIPTION	QTY	UNIT	NOTES
MOBILITY CONTROL CENTER (MCC) WORKCENTER EQUIPMENT			
MCC WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	
TRANSPORTATION CONTROL UNIT (TCU) WORKCENTER EQUIPMENT			
TCU WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
AIR CARGO TERMINAL (ACT) WORKCENTER EQUIPMENT			
ACT WORKSTATION	1	EA	
LASER PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
AIR PASSENGER TERMINAL (APT) WORKCENTER EQUIPMENT			
APT WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
HAND-HELD TERMINAL & CHARGER	1	EA	
MODEM	2	EA	
SUB-MOTOR POOL (SMP) WORKCENTER EQUIPMENT			
SMP WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	
LOAD PLANNING (LP) WORKCENTER EQUIPMENT			
LOAD PLANNING WORKSTATION	1	EA	
LASER PRINTER	1	EA	
MODEM	2	EA	
MAJCOM LOGISTICS READINESS CENTER (LRC) WORKCENTER EQUIPMENT			
LRC WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	
MODEM	2	EA	

COMBAT AMMUNITION SYSTEM - BASE (CAS-B) WORKCENTER EQUIPMENT			
CAS-B WORKSTATION	1	EA	
MODEM	2	EA	
DOT MATRIX PRINTER	1	EA	
HQ LGTX WORKCENTER EQUIPMENT (TEMPEST)			1
LGTX WORKSTATION	1	EA	
DOT MATRIX PRINTER	1	EA	

NOTES
1. The CMOS program is not responsible for a secure location to house this equipment.

EQUIPMENT POWER/HEAT CRITERIA

REF NO.	EQUIPMENT	WATTS	STARTING AMPS CONUS/OS	BTUH	DEMAND FACTOR %	NOTES
1	AT&T 3B2 COMPUTER	900	7.5/3.3	1700	100	1
2	SYSTEM ADMIN	720	6/3	1700	100	1
3	SBSS INTERFACE	360	3/1.5	600	100	1
4	LINE PRINTER	2000	16/8	4600	15	2
5	UPS	3000	---	400	100	2,3
6	LAN TERMINAL SERVER	120	1/0.5	300	100	2
7	Z248 PC (INC I & II WORKSTATIONS)	360	3/1.5	600	100	2
8	DOT MATRIX PRINTER	250	2/1	600	60	-
9	LASER PRINTER	1000	9/4.5	2400	40	-
10	SPIKER BOX	--	---	---	--	-
12	HAND-HELD TERMINAL AND CHARGER	--	---	---	--	4
13	MODEM	12	.1/.05	20	100	-
14	MODEM RACK	216	2/1	400	100	5

NOTES:

1. Powered through the UPS.
2. Dedicated circuit.
3. Will be provided with a NEMA 5-50P (50amp) plug for 120V application and 6-30P (30amp) plug for 230V application.
4. Very minimal power draw.
5. Based on 18 modem cards (12 watts per modem card).

CMOS PSA ATTACHMENT 4

BASE CIVIL ENGINEERING SUPPORT

1. Facility Requirements:

   a. TMO Functional Areas:

      (List requirements and explanation)

   b. Mobility Areas:

      (List requirements and explanation)

_____ _____

Base Civil Engineer Squadron Commander Signature

CMOS PSA ATTACHMENT 5

BASE COMMUNICATIONS SUPPORT

1. Host Base/Wing SC will:

   a. (Provide explanation of comm support including dedicated and dialup lines.)

   b. Include location of DDN Concentrator (or future location if not installed).

2. CMOS POC will:

   Include Bubble Charts as a part of this attachment.

_____

Comm Squadron Commander Signature

CMOS PSA ATTACHMENT 6

LAN SUPPORT

The Local Area Network (LAN) will be installed by a Scientific Engineering Technical Administration (SETA) contractor. The base responsibility will be primarily limited to providing dimensioned cable routing drawings, wall penetrations where needed, and electrical and telephone cables to the workcenters. The SETA contractor will prepare an engineering plan which will describe any additional support required from the base. A copy of the engineering plan will be provided to assist in LAN support planning.

CMOS PSA ATTACHMENT 7

DRAWING LIST WITH DRAWINGS

(NOTE: See Table C-2 for list of required drawings.)

1. Base Map

2. Affected Buildings

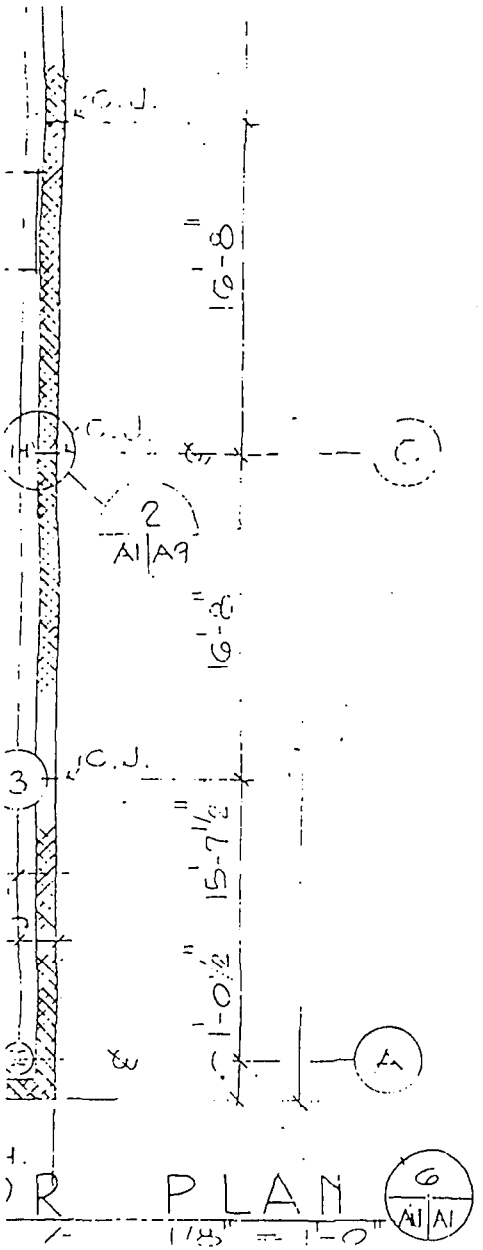
    a. Bldg *** (Main CMOS functional area)

        (1) Floor Plan (see example of Floor Plan - Interior)

        (2) Ceiling Plan (see example of Reflected Ceiling Plan)

        (3) Power (see example of Floor Plan - Power)

SPG 1 Dec 89



PIN. SHI. M.T.L SCREWS THRU 1/2" SLOT COUNTER SUNK IN ALUM R 3" OR INTO PLASTIC ANCHORS

12" 6" 0'
SCALE: 1-1/2" = 1'-0"

19 A5 A6 METAL COVER AT FLOOR JO
RMS. 103, 104, 105 & 10

0' 5' 10' 15' 20' 25'
SCALE: 1/8" = 1'-0"

12" 0 5' 10'
SCALE: 1/4" = 1'-0"

REGISTERED A
STATE OF T
#

SYM.	DO. NO.	ACTION	DATE	DESCRIPTION OF REVISION
			28AUG87	REVISED AS-BUILT

HOWERTON Associates Architects
201 East Abram, Suite 730
Arlington, Texas 76010
(817) 275-2104

U.S. ARMY ENGINEER DISTRICT, FORT
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: MLH
DRAWN BY: MK JAD
REVIEWED BY: MLH/WRN

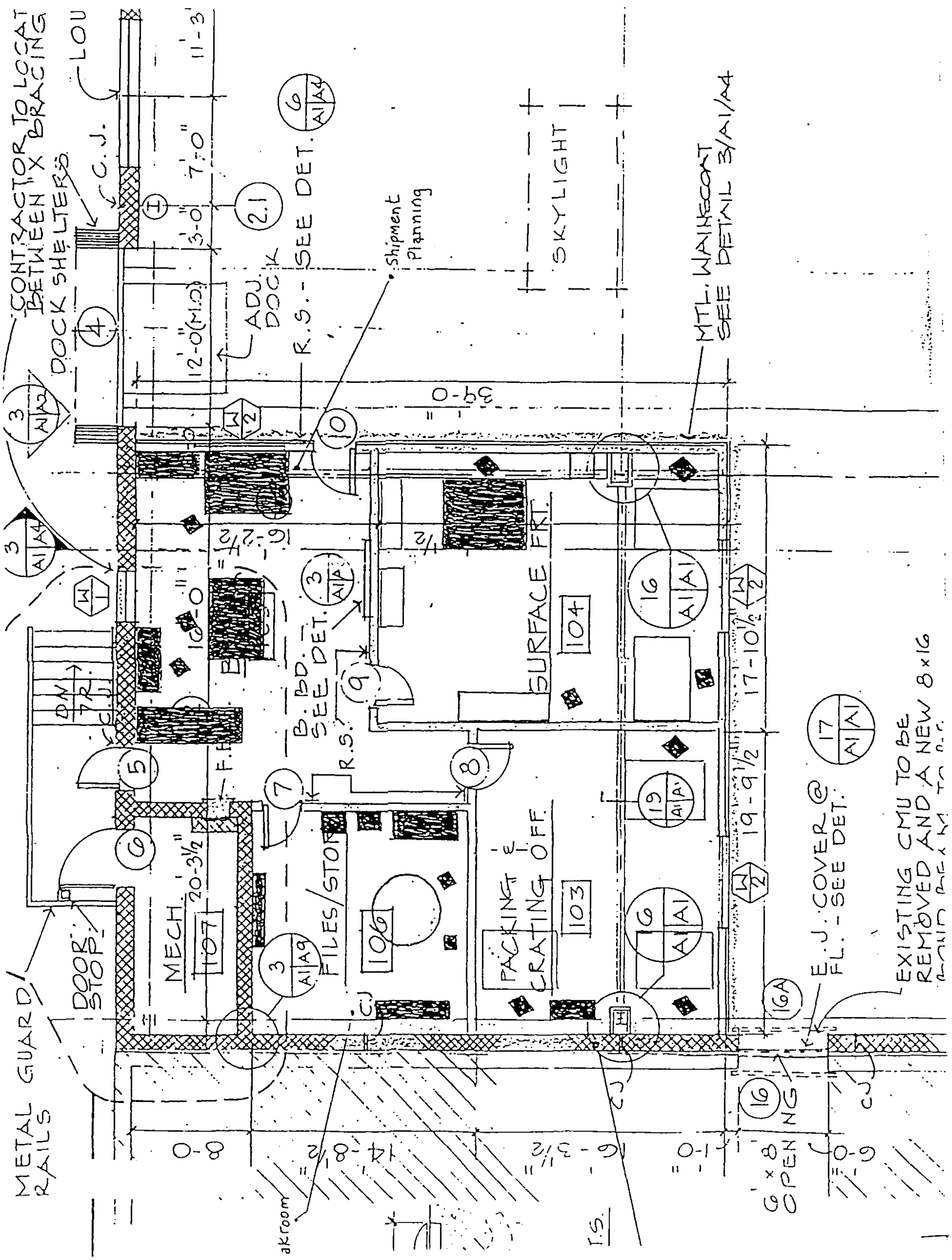
BERGSTROM AIR FORCE BASE, TEXAS

COMMERCIAL TRANSPORTATION FACILI

FLOOR PLAN, INTERIOR ELEVATI

SUBMITTED BY:
ENGINEER:

SOL. NO. DACA63-86-B-0186 DATED:
CONTR. NO. DACA63-86-C-0152
DRAWING NUMBER
SHEET NO. A-1 OF 10A


CONTRACTOR TO LOCAT BETWEEN X BRACING
DOCK SHELTERS
C.J.
LOU
ADJ. DOCK
R.S. - SEE DET.
Shipment Planning
SKYLIGHT
MTL. WAINSCOT SEE DETAIL 3/A1/A4
SURFACE FRT.
104
B.BD. SEE DET.
MECH.
107
FILES/STOR
106
PACKING & CRATING OFF.
103
METAL GUARD RAILS
DOOR STOP
E.J. COVER @ FL. - SEE DET.
EXISTING CMU TO BE REMOVED AND A NEW 8x16
6 x 8 OPENING
17-10½
19-9½
20-3½"
39-0
12-0(M.O.)
7'-0"
11'-3"
14'-8½"
16'-0"

SPG 1 Dec 89

SPG 1 Dec 89

78

CONDITIONS AND DIMENSIONS BEFORE PROCEEDING WITH ANY WORK.

12" 6" 0' 1' 2'
SCALE: 3/4" = 1'-0"

0" 3" 6" 12"
SCALE: 3" = 1'-0"

12" 0' 1' 2' 3' 4'
SCALE: 1/2" = 1'-0"

0' 5' 10' 15' 20' 25'
SCALE: 1/8" = 1'-0"

12" 6" 0'
SCALE: 1-1/2" = 1'-0"

SYM.	NO.	ACTION	DATE	DESCRIPTION OF REVISION
~				
			28AUG87	REVISED AS-BUILT

HOWERTON Associates Architects
201 East Abram, Suite 730
Arlington, Texas 76010
(817) 275-2104

U.S. ARMY ENGINEER DISTRICT, FORT WO
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: MLH

DRAWN BY: MK JAD

REVIEWED BY: MLH / WRN

BERGSTROM AIR FORCE BASE, TEXAS
B1-7, B1-1

COMMERCIAL TRANSPORTATION FACILITY

REFLECTED CEILING PLAN, WALL SECTION

REGISTERED ARCHITECT ★ STATE OF TEXAS ★

SUBMITTED BY:

ENGINEER:

SOL. NO. DACA63-86-B-0160 DATED: MAY 1

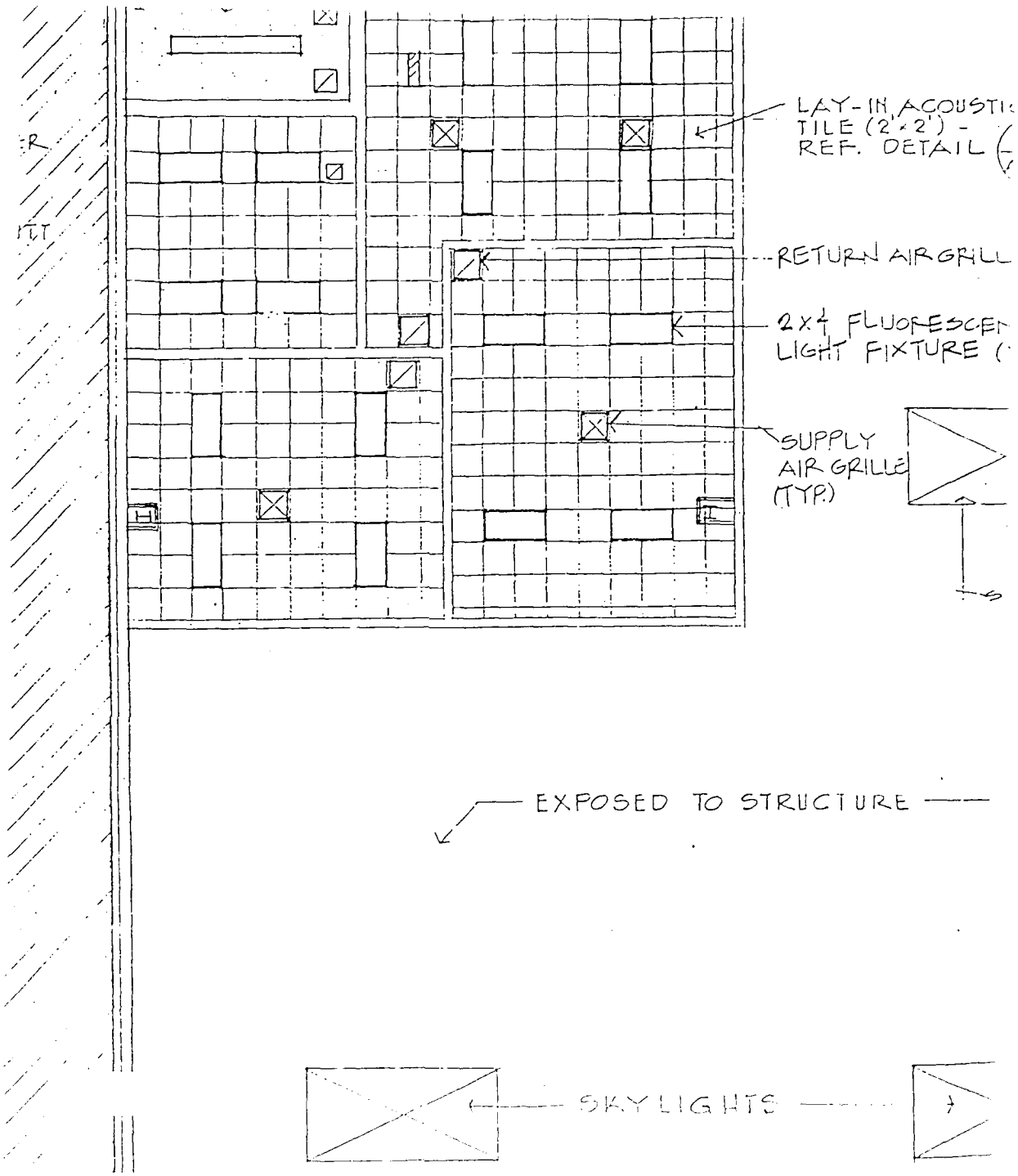
CONTR. NO. DACA63-86-C-0152

DRAWING NUMBER

SHEET NO. A-4 OF 10A

SEQU

AS-BUILT

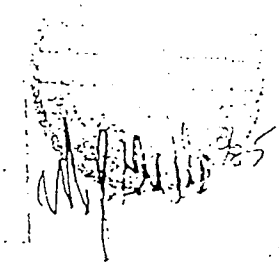

LAY-IN ACOUSTI
TILE (2'x2')
REF. DETAIL
RETURN AIR GRILL
2x4 FLUORESCEN
LIGHT FIXTURE
SUPPLY
AIR GRILLE
(TYP.)
EXPOSED TO STRUCTURE
SKY LIGHTS

5' 10' 15' 20' 25'

LE: 1/8" = 1'-0"

2"0 5' 10'

SCALE: 1/4" = 1'-0"



REGISTERED ARCHITECT ★ STATE OF TEXAS ★

Wells Doak
Engineers, Inc.

1300 S. UNIVERSITY DR. SUITE 301 • (817)877-5828 FORT WORTH, TEXAS 76107

B

		2-24-87	REVISED AS-BUILT
QQ NO.	ACTION	DATE	DESCRIPTION OF REVISION

HOWERTON Associates Architects
201 East Abram, Suite 730
Arlington, Texas 76010
(817) 275-2104

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

GNED BY:

WN BY:

VED BY

BMITTED BY

BERGSTROM AIR FORCE BASE, TEXAS

COMMERCIAL TRANSPORTATION FACILITY

FLOOR PLAN - POWER

SOL. NO. DACA63-86-B-0152 DATED MAY 1986

CONTR. NO. DACA63-86-C-0152

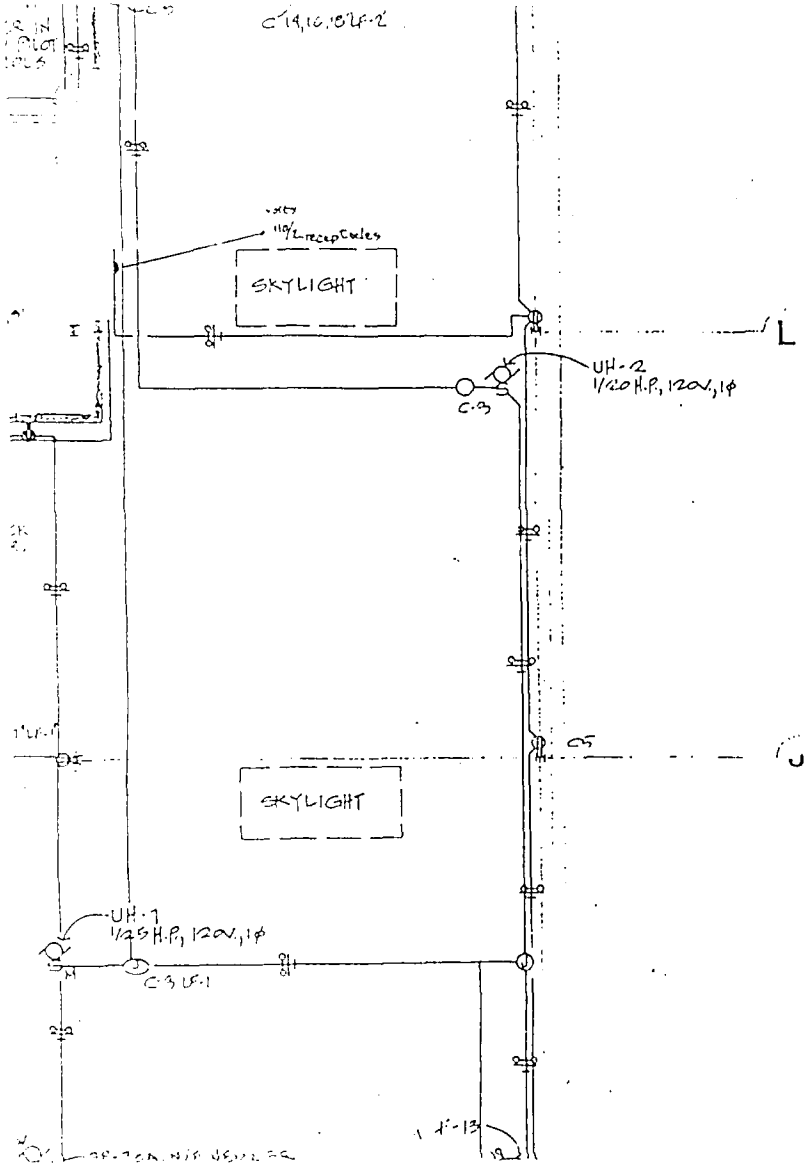
DRAWING NUMBER

SHEET NO E-2 OF 2E

SEQUENCE NO. 24

CONTR NO DACA63-86-C-0152

DRAWING OF WORK AS-BUILT



ELECTRICAL LEGEND

	FLUORESCENT LIGHTING FIXTURE (TYPE AS NOTED)
O^A	INCANDESCENT OR H.I.D. LIGHTING FIXTURE (TYPE AS N
	SINGLE FACE EXIT LIGHT (TYPE AS NOTED)
K	EMERGENCY BATTERY LIGHT (TYPE AS NOTED)
S	SINGLE POLE SWITCH (4'-0" A.F.F. UNLESS NOTED OTHER
S_3	THREE WAY SWITCH (4'-0" A.F.F. UNLESS NOTED OTHERWI
S_4	FOUR WAY SWITCH (4'-0" A.F.F. UNLESS NOTED OTHERWI
	DUPLEX RECEPTACLE (12" A.F.F. IN OFFICE AREAS 48", IN WAREHOUSE AREAS UNLESS NOTED OTHERWISE)
	DISCONNECT SWITCH (N/F DENOTES NON-FUSED)
	MAGNETIC MOTOR STARTER
S_M	MANUAL MOTOR STARTING SWITCH
	JUNCTION BOX
	MOTOR CONNECTION
	CONDUIT WITH NEUTRAL, HOT, SWITCHLEG & GROUND COND
LF-1	HOMERUN WITH PANEL & CIRCUIT NUMBER
	CONDUIT ROUTED ABOVE FLOOR SLAB
	120/208V., 3Φ PANELBOARD (SEE SCHEDULE & RISER D
F	FIRE ALARM MANUAL PULL STATION
FD	FIRE ALARM BELL
	TELEPHONE OUTLET W/ 3/4" C. TO TELEPHONE TERMINAL B (12" A.F.F. UNLESS NOTED OTHERWISE)
	FLUORESCENT FIXTURE WITH EMERGENCY LIGHTING B
E.W.C.	ELECTRIC WATER COOLER
A.F.F.	ABOVE FINISHED FLOOR
	SPECIAL NOTE DESIGNATION
G.F.C.I.	GROUND-FAULT CIRCUIT INTERRUPTERS